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**No. 25**



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10 November 1980

# USSR REPORT

## CONSTRUCTION AND EQUIPMENT

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## CONSTRUCTION

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### FURTHER SPREAD OF COST ACCOUNTING IN CONSTRUCTION SLATED

Moscow EKONOMIKA STROITEL'STVA in Russian No 7, 1980 pp 3-10

[Article by Yu. N. Rakhmanov, chief of GlavPEU [Main Administration for Economic Planning] of USSR Minpromstroy [Ministry of Industrial Construction]: "The Further Development of Cost Accounting in Construction"]

[Text] Management methods have been improved relative to the concrete situation at all stages of building socialism, taking into account the peculiarities of development of branches of the national economy and the need to solve overall national-economy tasks. Because of the improvement of planning and strengthening of the influence of the economic mechanism on raising production efficiency and work quality that the CPSU Central Committee and USSR Council of Ministers decree of 12 July 1979 called for, the persistent and effective introduction of cost accounting into all branches of the national economy and at all levels of its management is acquiring special importance.

Back in 1929, when the management of industry was reorganized, the basic requirements for enterprise cost accounting, which are the bases for increasing production effectiveness--operating in accordance with plans, an absence of losses, responsibility for results, the strictest daily accounting for and monitoring of production and distribution, and an increase in every possible way of the material motivation of workers toward the results of their work--were formulated.

A new approach to supervision of the economy was produced by decisions of the party and the government in 1965-1966. New principles for the country's economic policy were defined that called for a strengthening of the role of economic methods and incentives for controlling the national economy, radical improvement of the system of national economic planning, an expansion of the economic independence and initiative of enterprises, and a rise in the responsibility and material incentives for production collectives for the results of their labor.

The set of measures for improving planning and economic incentives that has been promulgated for the national economy since 1966, which was named the economic reform, was aimed basically at strengthening economic methods



of supervision, more complete use of such economic levers as profit, wages, credit and economic incentive funds, a rise in the scientific approach to planning, an expansion of the economic independence and initiative of enterprises and organizations, and a strengthening of the motivation of worker collectives toward the final results of their activity, based upon a correct combining of material and moral stimuli.

The main principles of the economic reform in construction, which were laid down in the CPSU Central Committee and USSR Council of Ministers decree of 28 May 1969, "On Improvement of the Planning of Capital Construction and Strengthening of Economic Incentives for Construction Operations," defined the further development of new economic methods for managing construction. The decree emphasized that "Cost accounting in construction and installing organizations and their long-term relationship with clients is of a formalistic nature to a great extent." This evaluation required the adoption of active, concrete measures in the conduct of cost accounting in construction.

The Main Directions for Developing the National Economy of the USSR During 1976-1980, which was adopted by the 25th CPSU Congress, said directly: "Strengthen the influence of cost accounting, financing and credit on the development of production, the improvement of qualitative indicators of management, a reduction in nonproductive expenditures and in losses, and an increase in the state's income."

The economic reform that was begun in construction 10 years ago helped to a great extent to strengthen cost accounting in construction organizations. More than 90 percent of the country's construction organizations are now operating under the new terms for planning and economic incentives.

The basic principles for supervising the economic development the socialist society has now been fixed in Article 16 of the USSR Constitution. It states: "Supervision of the economy is accomplished on the basis of state plans for economic and social development, taking into account branch-of-the-economy and territorial principles, in which there is a combining of centralized control with the economic independence and initiative of enterprises, associations and other organizations. In so doing, cost accounting, profit, operating costs, and other economic levers and stimuli are used actively."

Cost accounting, being a method for the planned conduct of economic activity that is based upon the commensurateness of expenditures, in terms of cost for production, with the results of the economic activity, and upon the reimbursement of expenditures with income, with the receipt of a profit and with a determination of the profitability of the work, has begun to be used increasingly widely in construction in recent years, being limited, it is true, by the activity principally of construction and installing organizations. One of the tasks that faces construction in the near future is the expansion in every possible way of the conversion of most construction and installing organizations to cost accounting and the conversion to this method for conducting the affairs of the Union-republic

construction ministries and the territorial main construction administrations which belong to the system of USSR construction ministries and agencies.

Many collectives of construction and installing organizations, showing initiative, have already gained definite experience in implementing cost accounting and in seeking unused reserves and putting them to use in construction operations. In this regard, the experience of the collective of the Order of Lenin Trust No 1 of Kievpromstroy [Kiev Industrial Construction Combine] of USSR Minpromstroy, which transferred to the new terms of management in 1971, is interesting.

Over a period of many years, but especially in recent years, this trust has been introducing production capacity and facilities uniformly by quarter of the year. Such a situation was achieved primarily thanks to engineering preparation for construction operations that was carefully developed and performed on the basis of designs for the organization of construction and designs for the execution of operations, as well as of integrated contracts for the socialist competition of builders, installers, designers, clients and suppliers of materials, structure and equipment. As experience has indicated, this approach to construction enables the creation of a flow-line construction conveyor, a rational workload for the trust, and rhythmic introduction of production capacity and facilities into operation. Under these circumstances, economic levers and principles of cost accounting in construction show themselves more accurately. Since 1973 the trust has converted to settlements with suppliers for finished jobs. The system of centralized settlements between the trust and its subdivisions has been in operation in the trust, and settlements between the trust's UPTK [production operations outfitting administration] and construction administrations have been made in accordance with planned settlement prices for a period of many years. Claims work in the trust, which helps to improve provisioning of the construction project with good-quality design and budget-estimating documentation, structure, articles and materials, is well organized. The engineering and economic preparation for construction operations that is being conducted for all facilities that are under construction has enabled wide and active development of cost accounting in the trust, especially of on-site cost accounting, including even the brigade contract.

Searches for new and economical methods for managing the Order of the Emblem of Honor Administration of the Khar'kov DSK [Housing Construction Combine] of UkSSR Minpromstroy are of interest. While in 1973 only one brigade in the combine worked under a brigade contract, a large-scale conversion of brigades to the assembly-line job contract has now been executed. The essence of this form of contracts consists in the signing and execution of joint contracts by general-construction and specialized brigades for the construction and turnover of facilities for operation. The economic benefit from introducing this system in the Khar'kov DSK is about 600,000 rubles annually.

Searches for new forms of on-site cost accounting in Trust No 14 of Glav-zadapuralstroy [Main Administration for Construction in the Western Urals Economic Region] of USSR Minpromstroy are interesting. The trust created a system of economic mutual relationships and settlements among trust subunits, including sections and brigades. A special regulation that governs these mutual relationships reflects the rights and obligations of the collectives and establishes penalties for violation of long-term commitments that directly affect the results of the work of the trust's subunits. Thus, for example, for late turnover to the client of a facility, the guilty sections pay the trust a fine in the amount of 500 rubles for each overdue day. A construction section pays from the settlement a penalty for idle time of construction machinery and mechanisms double the cost of a machine shift. For incomplete delivery of structure, articles and materials or violation of the established schedule, the UPTK pays the construction subunit a penalty in the amount of 20 percent of the cost of the set of items. This strict system of economic penalties, which is executed with precision under the terms of cost accounting for organizations, helps to maintain rhythmic operation of all the trust's subunits.

Studies of the practice of organizing cost accounting in construction that prevailed during the 1970's indicated that its potential as a management method was being used far from completely. One of the causes of this was, in our view, a lack of coordination and inconsistency in the implementation of cost-accounting principles in the territorial organs of construction management. Up until now there has not been a single region in which all the brigades and construction organizations and the main construction administration as a whole, or the construction ministry, have been covered by a single cost-accounting system. The cost accounting ties that exist among the participants of construction progress--general contractors, clients, design organizations, transport companies, motor pools, organs for supplying materials, equipment, and complete sets of items, and so on--are not reflected precisely enough yet. Therefore, a new approach to cost accounting in construction, which would be predicated upon the integrated solution of problems of cost accounting relationships in construction is necessary.

Experience in more improved economic methods of cost accounting for construction has been gained in Belorussian SSR Minpromstroy and its organizations.

An economic experiment, whose purpose was to search for ways to speed up the introduction into operation of production capacity and facilities, to raise the concentration of construction work, to reduce the number of facilities being built simultaneously, to reduce construction time, and to lower the level of uncompleted construction work, was begun in this ministry in 1976. Moreover, tasks were set for raising the organizational, technical and sophistication levels of construction work, creating the prerequisites for the flow-line method of performing construction, improving the quality of construction, and executing construction with the full implementation of cost accounting throughout the whole ministry system.

Improvement of the production-economics activity of Belorussian SSR Minpromstroy was specified through essential changes in the system for the planning, financing, economic incentives and administration of construction operations.

For the first time in construction practice the conversion was made here to settlements with clients for finished enterprises, phases, complexes and facilities that are due for early startup and that have been readied for the production of output or the extension of services. Planning of the amount of construction commodity output, that is, the full complex of construction and installing work on facilities due for startup in accordance with their budget-estimated cost, was called for at all levels of construction management.

The formation of profit, the crediting of economic incentive funds, evaluation of the activity of construction organizations, and so on were set to depend upon fulfillment of the construction commodity output plan. The procedure for financing expenditures for uncompleted construction work was changed. Instead of advances by clients, construction organizations receive bank credits, for the use of which a fee, which depends upon the dates of turnover of the facilities, is established.

Under the terms of the experiment, an economic incentive system more flexible than the old one was also created. Along with the procedure that exists in construction organizations for forming and using economic incentive funds, Belorussian SSR Ministry of Industrial Construction forms centralized funds that are intended both for motivating workers of the ministry's central apparatus and its nonproduction organs and for extending assistance to subordinate organizations when their indicators are degraded by causes not of their making.

Conversion of the ministry to the new principles of control, planning and financing meant in essence the transformation of BSSR Minpromstroy's entire production-economics system into a single large construction complex, which executes its activity completely on the basis of cost accounting principles. Unlike the generally used procedure, the main source for covering all these expenditures in the ministry system became the profit that is left at the disposal of the ministry under the approved standard. The basic features of complete BSSR Minpromstroy cost accounting were manifested in the current-operations self-sufficiency of the ministry and an increase in economic responsibility for production results in all elements of construction management.

Under these circumstances, basically new relationships between the ministry and the state budget prevail. For the first time in construction practice, the ministry undertakes to guarantee to provide payments into the budget for its entire structural system, based upon the standard sharing method for distributing profit. The means that contributions to the budget are made within the limits of the planned sums, regardless of the results of the ministry's production-economics activity. If individual construction organizations do not fulfill profit plans, then payments



into the budget are compensated for through ministry reserves. Such a procedure stimulates all elements of construction management to work responsively to eliminate the factors that cause nonfulfillment of profit plans, and to react quickly to lagging organizations, since their indicators will at once be reflected negatively in the overall financial status of the ministry as a whole.

The mechanism that the experiment established for distributing profit between the ministry and the state budget according to stable standards was a most important component of the economic methods for management and for executing cost accounting. During a recent period Belorussian SSR Minpromstroy did much work in searching for more effective methods for using the monetary resources of construction organizations and industrial enterprises and for monitoring the use thereof for the specific purpose intended, and acceleration of the turnover of working capital was strengthened. Construction organizations began to pay more attention to questions of raising labor productivity and production profitability, and they worked actively to introduce new equipment and advanced experience into production.

Thus, the propagation of cost-accounting relationships in the ministry's construction organizations and expansion of use of the brigade contract and of cost accounting of the ministry itself during the Belorussian experiment enabled the concept of cost accounting in construction to be approached as a system. It is to be remembered that the cost accounting mechanism of the territorial control organ connected the principles of management at all levels of construction management into a single whole.

The economic, organizational and technical measures taken by Belorussian SSR Minpromstroy permitted, despite a number of difficulties that arose, definite positive results in the ministry's activity to be achieved. During the 4 years, 3,482 items of production capacity and facilities, 229 of which had been called for by the State Plan for the Economic and Social Development of the USSR, were turned over for operation. More than 225 of the items of production capacity and facilities were turned over ahead of time. The ministry had never managed to turn over such a number of items of production capacity and facilities before in corresponding periods. The ministry coped completely with the plan for construction and introduction into operation of schools, polyclinics, hospitals, preschool children's institutions, and housing.

In 4 years of operation Belorussian builders managed to reduce construction time below that called for in the plan for more than 800 facilities. In so doing, the average operating time for building the facilities was reduced by 16 percent.

In 1979 the introduction into operation of production capacity and facilities, according to Belorussian SSR Minpromstroy data, increased by 30 percent over 1975, and the level of incomplete construction work as a percent of the total amount of construction and installing work was reduced by



more than 3 percent. The quality of construction rose substantially. More than 95 percent of the industrial facilities were turned over with evaluations of "good" or "excellent" in 1979.

It should be noted, at the same time, that under the terms for conducting the Belorussian experiment, the same as during the conversion of construction organizations to the new system of planning and economic incentives, one of the most important questions of improving the economic mechanism in construction remained unsolved: an incentive for all the interdependent organizations that participate in construction operations, in the final results of the activity of construction and installing organizations.

This circumstance has greatly affected the results of the production, financing and economics activity both of individual construction and installing organizations and of the ministry as a whole.

The operating experience of Belorussian SSR Minpromstroy has indicated that the increased economic responsibility of the construction ministry to the state and the financing of all expenditures through in-house resources makes it necessary to strengthen monitoring over the production-economics activity of construction organizations and enterprises subordinate to the ministry. Because of this, a qualitatively new approach to the organization of construction work management is required, and the necessity has emerged for improving the management structure, primarily by reducing the number of tiers of control and joining separate organizations and enterprises into a single construction and installing production complex. BSSR Minpromstroy has created several such construction and installing production associations, which are now the basic cost-accounting element of construction production.

Experience has shown that further improvement of the economic mechanism in construction should be based upon the wide use of economic methods of supervision in all elements of control--from the brigade to the construction ministry. While the basic decisions and regulations for performing cost accounting in the brigade, the construction sector, the administration, the trust and the construction and installing production association are basically clear, and their introduction and implementation in all the indicated construction subunits are required, the basic rules about cost accounting in the Union-republic construction ministry and the territorial main construction administration require definition, since cost accounting for them should be distinguished qualitatively from cost accounting in the construction and installing production association.

Current outlays for production are reimbursed in the association system in the process of the production-economics activity. The association, after recouping all its outlays and expenditures from the profit obtained from the realization of construction commodity output, should introduce into the budget payment for the use of fixed capital and working capital, form its own economic incentive funds, cover expenditures for upkeep of the housing inventory, clubs, Pioneer camps, kindergartens and other facilities, and to transfer a substantial portion of the profit to the

Union-republic construction ministry (or the territorial main administration or the territorial administration for construction) for an expansion of production (in-house capital investment, increase in in-house working capital, the training of personnel, and so on). It must be considered that, in the cost accounting of a Union-republic construction ministry (or a territorial main administration or a territorial administration for construction), expenditures for expanding production throughout its whole system should be financed through profit and other resources transferred to it by lower-level organizations.

The cost accounting of an organization of the middle tier of construction management should be manifested not only in the correct distribution and expenditure of the centralized fund for expanding production but also in an objective influence on the whole production-economics activity of subordinate organizations.

The experience of Belorussian SSR Minpromstroy in the conduct of cost accounting should be used, but there are still some questions that require additional study and solution. These include:

the necessity for changing the organizational structure of the central staff of middle-level management;

the development of scientifically substantiated principles for distributing profit in construction among the association, the middle management element and the budget; and

the determination by precise guidance of the rights and responsibilities of all structural subunits, beginning with the middle element of construction management.

Belorussian SSR Minpromstroy's operating experience furnishes a basis for converting all Union-republic construction ministries and territorial main administrations and territorial administrations for construction to cost accounting. The implementation of this proposal will be a huge step in improving the economic mechanism in construction.

It is necessary to dwell separately on creation of the prerequisites for providing for self-support in construction. In recent years the profit of construction organizations has been reduced. The causes of this are an increase in wholesale prices for materials, change in transport schemes, increase in the amounts of work on rural construction projects, and work on the restructuring and technical reequipping of existing enterprises, while retaining budget-estimated prices for construction and installing work at the 1969 level. As a result, the inevitable expenditures of construction and installing organizations are not being compensated for, and the level of profitability of these organizations is dropping.

Such a situation hinders the conversion of territorial organs of control and associations to cost accounting and to self-support and of construction organizations to settlements with clients for the job as a whole and

the use of credit for expenditures for uncompleted work, since the amounts of payment for credit often exceed the profit available to the construction organizations.

As Belorussian SSR Minpromstroy experience has indicated, in order to implement the principle of self-support, that is, in order to cover all expenses through the profit obtained and to provide for the planned payments into the budget, a profitability of at least 8 percent is necessary.

Because of the fact that the new budget-estimated prices in construction will be introduced only at the end of the Eleventh Five-Year Plan, in our opinion it is desirable from now on, until approval of the new budget-estimated prices, that USSR Gosplan, USSR Minfin [Ministry of Finance] and USSR Gosstroy examine and solve the question of full reimbursement to construction organizations of technologically unavoidable expenditures through the budget estimates.

Redistribution of profit within the national economy can be a source of the indicated compensation. This measure will not require additional budgetary resources, and, at the same time, it will permit construction organizations to use more completely the economic levers and principles of cost accounting.

Another important factor in further improving cost accounting in construction is the correct devising of a system of evaluating indicators and the reflection thereof in statistical reporting. As is known, with conversion to the new form of settlements for completed enterprises, phases and complexes and facilities due for early startup and the introduction into planning of construction commodity output, changes have been introduced also into the procedure for evaluating the activity of construction organizations and their superior elements. This is done in accordance with the results of fulfillment of the task for the introduction of productive capacity and facilities into operation, construction commodity output, and growth in labor productivity and profit.

In our opinion, it is necessary, for purposes of more complete orientation to the final results of construction, to enlarge the potential of analytical work, for which purpose it is necessary to specify the use in statistical reporting of indicators that characterize the status of uncompleted work, to make an accounting of budget-estimated residues for jobs that have been started (according to the contractor) to consider the duration of construction, and so on.

A number of questions associated with planning construction commodity output and raising mutual responsibility for all construction participants for the fulfillment of contractual commitments also require solution.

As indicated by the experience of Belorussian SSR Minpromstroy and other organizations that have converted to planning in accordance with construction commodity output, this indicator is very sensitive to deficiencies, which, unfortunately, still exist in construction. These are a lack of

balance in plans, a dispersion of resources, and disorder in questions of supplying materials and technical resources, equipment and design and budget-estimating documentation. When contracting organizations settle accounts with clients for the "gross" amount of construction and installing work or for a stage of operations, the nonfulfillment of some portion of the work does not involve substantial losses. It is another matter when turnover of an enterprise as a whole or of a complex or facility due for early startup fails. In this case the construction organization underfulfills the plan for construction commodity output for the whole cost of the facility that has not been introduced, and, consequently, it bears greater losses.

For example, when BSSR Minpromstroy does not fulfill 1 million rubles' worth of the plan for construction commodity output, about 80,000 rubles less of profit, 20,000 rubles less of economic incentive funds and about 20,000 rubles less of the bonus for the introduction of the facilities are received. Moreover, the construction organization should pay the bank about 25,000 rubles of increased interest for credit. The sums that the contracting organization can exact from the client, and, correspondingly, the client from equipment suppliers, does not exceed 7-8 percent of the amount of the losses sustained by the general contractor.

In considering the fact that the results of the contracting organization's activity under planning for construction commodity output depends greatly upon the actually formulated plan for this indicator and on the terms for fulfilling it, preparations for this work by all construction participants must be conducted carefully.

In getting ready to make up the plan for 1981 and the Eleventh Five-Year Plan, all construction organizations and their superior elements should work with the client in good time on coordination of the plan for introducing facilities and the amounts of construction commodity output into operation. A check on the design and budget-estimating documentation and a consideration of the work previously carried out must be carefully organized, so that errors in determining the amount of construction commodity output may not be committed. It is necessary to identify jointly with clients the complexes due for early startup and their cost. The design institutes also should pay the most serious attention to this work.

During the concluding year of the five-year plan, the builders face a major task--that of fulfilling the plan for introducing production capacity and facilities into operation at least expense. Maximum utilization of existing reserves and further improvement of cost accounting principles in construction are a guarantee of the fulfillment of this task.

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## CONSTRUCTION

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### LAGS IN INTRODUCING NEW TECHNIQUES IN CONSTRUCTION CITED

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[Article by V. A. Blagoveshchenskiy, deputy chief of a section of Glavstroynauka [Main Administration for Scientific Research and New Technology] of USSR Gosstroy: "Carry Out Five-Year Plan Tasks for Introducing New Technology into Construction Work"]

[Text] Under the chapter, "The Development of Science and Technology," the state five-year plan for developing the national economy during 1976-1979 calls for the execution in the construction field of 909 tasks of scientific and technical programs, 49 for the mastery of new types of industrial output, 19 for the introduction of progressive technology, and 28 for indicators that define the technical and economic level of construction.

USSR Gosstroy, in proposals for drafts for annual state plans for the economic and social development of the USSR, called for a considerable expansion in the list of the tasks and an increase in the amount of new technology to be introduced into construction. Plan tasks for the first 4 years of the Tenth Five-Year Plan specified in the chapter, "The Development of Science and Technology," 34 tasks in the construction field for the introduction of progressive technology and 94 for for basic indicators that determine the technical and economic level of construction.

During the first 4 years of the Tenth Five-Year Plan, a major portion of the tasks that annual state plans for the USSR's economic and social development called for in construction, in the chapter, "The Development of Science and Technology," was fulfilled, including all 909 tasks for scientific and technical programs. Of the 49 tasks to master new types of industrial output, 44 were fulfilled or overfulfilled and 5 were not completely fulfilled. Of the 128 tasks for introducing progressive technology, mechanization of production processes, and the main indicators of the technical and economic level of construction and output produced, 83 were fulfilled and 45 were underfulfilled.

Of the tasks for mastering new types of industrial output that were called for during the first 4 years of the five-year plan, Minstroydormash



[Ministry of Road Construction] mastered the production of 12 types of new construction machinery, among them a number of hydraulic excavators, machines for laying plastic drain pipe without digging trenches, a set of machines for the rapid construction of highways, high-pressure painting units, and others. USSR Minstroyaterialov [Ministry of Construction Materials Industry] began to produce 9 types of building materials and structure, among which were stressing cement, asbestos-cement wall panels, heat-insulating mineral-wool sheet of increased rigidity, and others. Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] mastered the production of rotary trenching excavators.

Plan tasks for the introduction of progressive technology, the mechanization and automation of production processes, the achievement of the main indicators for the technical and economic level of construction and for the output produced were carried out less satisfactorily, although the pace of growth in amounts of new technology introduced during the first 4 years of the Tenth Five-Year Plan substantially outstripped the pace of growth in construction volume. Thus, while construction and installing operations grew 12.5 percent in volume, the amounts of introduction of new technology increased as follows: fully prefabricated construction by 32 percent, the use of roofing slabs fully prepared at the factory by 24 percent and of industrially produced partitions for industrial buildings 2-fold, the laying of conduit-free heating lines by 58 percent, the use of asbestos-cement enclosure structure by 35 percent, of steel shaped planking 1.5-fold and of progressive types of piles 2-fold, and the manufacture of prefabricated reinforced concrete by shock technology--from 80,000 to 1.78 million  $m^3$ . During the current five-year plan starts were made in the manufacture and use of some new types of building materials and structure and the introduction of more perfected technological processes.

In 1976-1979, 79 experimental facilities were built, but of the 46 facilities that were to be turned over for operation, only 40 were introduced, including:

By USSR Minenergo [Ministry of Power and Electrification]--a reinforced-concrete cooling tower 150 meters high with a productivity of 100,000  $m^3$  of water per hour at the Rovenskaya AES; a self-service store with 6x12-meter columnar grid and 2T-type ceiling-floor slabs; and a market with large-span roof structure in the city of Tol'yatti;

By USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises]--the main building of the Orsk Tractor-Trailer Plant, with a roof assembled on a conveyor line and erected in large modules; a unit of production departments for welded machinebuilding structure, with tubular roof trusses and sandwich-type wall panels, in the city of Verkhnyaya Pyshma; the main building of the iron-wire department of the West-Siberian Metallurgical Combine, made of lightweight metal structure with conveyORIZED preassembly and large-module erection of the roof; a 9-story 143-unit apartment house of three-dimensional panel structure in Khabarovsk; and others;

By USSR Minpromstroy [Ministry of Industrial Construction]--the main building of a weaving and spinning factory in Lutsk with a structural covering and a rational system of air ducts; a production building of the silk fabrics combine in Mogilev with centrifuged reinforced-concrete columns of ring cross-section; and others;

By USSR Minstroy [Ministry of Construction]--a multistory production-laboratory building with a span of 18 meters for an enterprise in Leningrad; a 9-story noise-proofed apartment house in Novosibirsk; and a grain elevator with 12-meter diameter silos made of fluted prefabricated prestressed reinforced-concrete elements in Bendery;

By USSR Minsel'stroy [Ministry of Rural Construction]--concentric silo shells 18 meters in diameter at the Kolodeznaya Railroad Yard, Voronezhskaya Oblast; prefabricated silo shells of increased height at the Kalinindorf Railroad Yard, Khersonskaya Oblast; and others; and

By organizations subordinate to RSFSR Council of Ministers--a 16-story 255-unit large-panel apartment house in Moscow, made of items from the Unified Catalog; a 22-story large-panel building for a 2,000-guest hotel in Moscow; and others.

During the first 4 years of the Tenth Five-Year Plan, electronic computers with an overall capacity of 24.77 million operations per second versus a planned 22.57 million operations per second, were put into operation.

Certain USSR Ministries and agencies permitted underfulfillment of tasks for a number of chapters of the plan, "The Development of Science and Technology," in the construction field; this was reflected in the main technical and economic indicators of their activity.

A lag was permitted in the mastery of new types of industrial output:

By Minstroydormash [Ministry for Construction, Road and Municipal-Machine Building]--one task (two ready-mix concrete carriers with body capacity of 3 m<sup>3</sup> that had been planned were not produced);

USSR Minstroyaterialov--three tasks, one on stressing cement (the goal was met 72 percent), one on cast-iron automatic boiler units (85 percent completed), and one on mastery of the production of heat-absorbing polished sheet glass;

Minneftegazstroy--one task (for rotary excavators, met 70 percent); and

USSR Mintyazhstroy--one task (for industrial equipment for manufacturing reinforced-concrete products, based upon long beds, met 50 percent).

A lag was permitted in the introduction of progressive technology and basic indicators of technical and economic level of construction, as follows:

USSR Minenergo--out of 89 tasks, 24 were underfulfilled, including the task for fully prefabricated construction, which was fulfilled 99.2 percent; for conveyORIZED prefabrication and erection of large-module coverings for industrial buildings, 47 percent; and for the use of structure and items made of aluminum alloys--92.3 percent, of effective rolled section--97.3 percent, of reinforced-concrete pressure pipe--72.7 percent, of H-beams--56.7 percent, and of stamped embedded parts--14.3 percent;

USSR Ministroy Materialov--out of 14 tasks, 3 were underfulfilled, including the task for manufacturing lightweight metal structure, which was met 45 percent;

USSR Mintyazhstroy--out of 89 tasks, 27 were underfulfilled, including the task for fully prefabricated construction, which was fulfilled 95 percent; for the introduction of the brigade contract, 98.7 percent; for large-panel and box-module housing construction, 97.5 percent; for conduit-free laying of heating grids, 84.9 percent; and for the use of prestressed reinforced-concrete structure and articles--97.7 percent, and of reinforced-concrete slabs manufactured by the formfree method on long beds--70 percent;

For USSR Minsel'stroy--out of 76 tasks, 32 were underfulfilled, including the task for fully prefabricated construction, which was met 99.2 percent; for large-panel and box-module housing construction, 75.1 percent; for the construction of housing with new-series standard designs, 92.8 percent; and for the use of structure and articles made of lightweight concretes--94.3 percent, of prestressed reinforced-concrete structure--94.5 percent, and of shaped steel planking--71.7 percent;

For Mintransstroy--out of 73 tasks, 37 were underfulfilled, including the tasks for large-panel and box-module housing construction, which was met 94.1 percent; for the use of H-beams--66.1 percent and of reinforced-concrete roll-free roofing--62.5 percent; for the conduit-free laying of heating networks, 82.4 percent; and for the use of 500-grade concretes--70 percent, of class S46/33 and S52/40 steels of increased strength--82.6 percent, of effective rolled section--86 percent, and of lightweight metal structure--32.4 percent; and

For organizations subordinate to the RSFSR Council of Ministers--more than 50 percent of the tasks called for by plans were underfulfilled, including the task for fully prefabricated construction, which was met 97 percent; for large-panel and box-module housing construction, 93.5 percent; for introduction of the brigade contract, 84.6 percent; for the construction of housing under new-series standard designs, 99 percent; and for the use of structure and articles made of lightweight concretes--98.8 percent, of structure made of aluminum alloys--85.6 percent, of lightweight metal structure--67.2 percent, of shaped steel planking--81 percent, of reinforced-concrete pressure pipe--81 percent, and of stamped embedded pieces--87.3 percent.

The construction ministries did not provide for the introduction into operation of six experimental facilities, including:

USSR Minpromstroy--ore warehouses Nos 1 and 2 of the potassium plant in Solikamsk, with coverings made of glued wooden arches;

Mintransstroy--a railroad bridge on the Uzlovaya-Ryazhsk section, with a steel span structure made of box section; and

USSR Minsel'stroy--a silo shell made of prefabricated reinforced concrete modular elements 3x6 meters, with internal partitions, in Mikhaylov, Ryazanskaya Oblast.

The introduction of computer capacity into operation was allowed to lag in 1979: USSR Mintyazhstroy lagged by 0.16 million operations per second, USSR Minsel'stroy by 0.24 million operations per second.

The amounts of construction and installing work performed by organizations of USSR ministries and agencies with the use of new technology and new types of industrial output were clearly inadequate. This was reflected to a significant degree in the indicators for their economic activity. Thus, the plan for construction and installing work for 1976-1979 was met by only 96.5 percent--in the case of USSR Minenergo by 95.3 percent, USSR Mintyazhstroy by 90.9 percent, Minpromstroy by 88.4 percent, USSR Ministroy by 90.7 percent, USSR Minsel'stroy by 95 percent, organizations subordinate to the RSFSR Council of Ministers by 97.8 percent and organizations subordinate to the UkSSR Council of Ministers by 97 percent.

Among organizations of All-Union subordination, not one construction ministry, except for USSR Minvudkhoz [Ministry of Land Reclamation and Water Resources], carried out tasks for reducing operating costs for construction and installing work.

Goals for growth in labor productivity in construction for the country as a whole for 1976-1979 were met by 90.7 percent, including 90.2 percent by USSR Minenergo, 94.3 percent by USSR Minvudkhoz, 85 percent for Mintyazhstroy, 83 percent by USSR Minpromstroy, 83.8 percent by USSR Ministroy, 86.1 percent by USSR Minsel'stroy, 99.7 percent by Minneftegazstroy, 91.6 percent by Mintransstroy, and 94.1 percent by USSR Minmontazhspetsstroy [Ministry of Installation and Special Construction Work].

It must be noted that the strenuousness and effectiveness of the proposals that ministries and agencies introduce into drafts of state plans for developing science and technology or that are found in plans for introducing the achievements of science and technology that they have approved are clearly inadequate. Even in those cases where individual ministries practically carry out the tasks of state and ministry plans for developing science and new technology, they do not insure the fulfillment of many of the established basic indicators for production-economics activity.



USSR ministries and agencies are not using adequately the personnel, material and financial resources and production capacity that are at their disposal to accelerate technical progress in construction. Thus, for example, during 1976-1978, funds for mastering new equipment were utilized as follows: by USSR Minenergo--83 percent, by USSR Mintyazhstroy--68 percent, by USSR Minpromstroy--85 percent, by USSR Ministroy--68 percent, by USSR Minsel'stroy--52 percent, by Minneftegazstroy--64 percent, by Mintransstroy--22 percent, and by USSR Minmontazhspetsstroy--29 percent. These ministries alone underutilized these funds by about 150 million rubles.

About 180 institutes and Orgtekhtstroys [State Trusts for Industrialized Construction] subordinate to USSR construction ministries and agencies, which have a total worker manning of about 65,000, still are not exerting a substantial influence on raising the technical and economic levels of construction operations and the fulfillment by construction and installing organizations and enterprises of tasks for introducing scientific achievements and new equipment.

In 1978 the capacity of enterprises that produce prefabricated reinforced-concrete structure and parts was used only 76.8 percent by Minneftegazstroy, 83.3 percent by USSR Ministroy, capacity for large-panel housing construction was used 50.2 percent by Minneftegazstroy and 69 percent by USSR Minsel'stroy, capacity for producing structure made of lightweight and cellular concretes was used 83.7 percent by USSR Minpromstroy and 84.4 percent by USSR Minenergo, capacity for the production of lightweight metal structure was used 66 percent by USSR Minenergo and 56 percent by USSR Minmontazhspetsstroy, capacity for the output of structure made of aluminum alloys was used 57 percent by Minmontazhspetsstroy, and capacity for the production of steel structure was used 82 percent by USSR Mintyazh- and 72 percent by Mintransstroy.

Union-republic gosstroyes are not adequately monitoring the progress made by ministries and agencies that perform construction and installing work on the republic's territory in meeting goals for introducing new equipment and for performing experimental construction, and they are not working properly with subordinate design institutes to insure that they provide for wider introduction of scientific and technical achievements into construction through the designs that are being developed.

The broad introduction of new equipment into construction and the improvement of its technical level are being held back to a certain extent by a lack of the required amounts of new and effective materials, articles, construction equipment and industrial equipment that are produced by Ministroydormash [Ministry of Road, Construction and Municipal Machine Building], USSR Ministroymaterialov, Minkhimprom [Ministry of Chemical Industry], USSR Minchermet [Ministry of Ferrous Metallurgy], and a number of other industrial ministries and agencies.

Efforts to eliminate lags in carrying out the tasks set by the Tenth Five-Year Plan for 1980 for the mastery of new types of industrial products,



the introduction of progressive technology, the raising of the technical and economic levels of production, the execution of experimental construction, and the introduction of computer capacity into operation in construction must be concentrated, and additional measures for eliminating a number of the deficiencies noted above must be adopted.

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## CONSTRUCTION

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### REVISED RULES FOR BUILDING CONTRACTORS, CLIENTS URGED

Moscow EKONOMIKA STROITEL'STVA in Russian No 7, 1980 pp 29-32

[Article by L. D. Levchenko, deputy division chief of USSR Gosstroy: "Some Questions of Improving Economic Interrelationships in Construction"]

[Text] The 12 July 1979 decree of the CPSU Central Committee and the USSR Council of Ministers, "On the Improvement of Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality," covers questions of improving the whole system of the economic management of production.

Implementing the main principles of the decree requires further development of cost accounting and a rise in the level of responsibility of production associations, enterprises and organizations to fulfill plan tasks and their commitments under mutual economic ties with other organizations that involve cooperative arrangements and specialized production.

Only a scientifically sound and rational system of economic mutual relationships can exert an appreciable effect on raising production effectiveness. In construction, because of the specifics of this branch of the economy, cooperative arrangements and specialization possess their own features, which should be reflected correctly in economic ties and in their legal regulation.

One of these peculiarities consists in the fact that the creation of new enterprises or structures and the rebuilding or reequipping of existing enterprises with machinery involves the participation of numerous general-construction, specialized and installing organizations. Along with them and in fulfillment of their own obligations, client enterprises take part in the process by providing construction with design and budget-estimating documentation, delivering equipment and specialized materials, and carrying out various types of specialized operations (the disassembly of equipment for the rebuilding of enterprises, and so on).

Under these circumstances, the precise determination of the functions, obligations and responsibilities of each participant in the construction process is of no little importance in achieving final results by the

established deadline and in providing for a high level of effectiveness for construction operations.

Beginning with the Eleventh Five-Year Plan, the system of indicators for the capital construction plan and the criteria for evaluating the economic activity of clients and construction organizations will be changed. The main indicator of the plan and of an evaluation of their activity will be the introduction of production capacity and facilities into operation. The cost indicator for the plan and for evaluating activity in capital construction will be, for clients, the introduction of fixed capital into operation, and, for construction organizations, the volume of construction commodity output.

Thus, planning under the new conditions orients clients and construction organizations to the completion and the turnover for operation of productive capacity and facilities by the planned deadlines.

A new plan indicator--the ceiling for capital investment and for construction and installing operations--defines during the planned period the maximum expenditures that should provide for the introduction into operation of the capacity and facilities by the deadline called for by construction time norms, and for the creation of the required backup of accomplished work. It will also serve as a basis for computing requirements for supplies and equipment and labor and monetary resources. The capital investment ceiling established in the plan should help in the concentration of resources and in their effective use.

The functions, obligations and responsibilities of each participant in the construction process should proceed from the necessity to carry out plan indicators, taking into account the restrictions that ensue from the established ceiling on capital investment and on construction and installing operations (material and labor resources, the required backup of construction work performed, and others).

The legal regulation of the clients' economic activity with regard to construction, contracting construction and installing organizations, and suppliers of equipment and materials should be brought into full accord with the requirements of the new, improved system of planning for capital construction and with measures for restructuring the economic mechanisms that are aimed at raising production effectiveness and work quality.

Steps taken in capital construction in accordance with the CPSU Central Committee and USSR Council of Ministers decree require not only refinement of the obligations of participants in construction and the establishment of increased responsibility for their execution but also an improvement of legal interrelationships with a view to reducing construction time and to raising the level of management. Because of this, it will be necessary to refine legislation for capital construction.

At present, the activity and economic relationships of construction participants are governed legally by such legislation as the Regulations about

Capital Construction Contracts, the Statute on Mutual Relations of Organizations--General Contractors with Subcontractors, and the Regulations about Agreements for the Fulfillment of Design and Survey Operations.

Economic agreements are of great importance in developing socialist economies, in carrying out plan tasks, and in achieving high production results. Since the plan cannot cover all aspects and peculiarities of the production and economic relationships of associations, enterprises and organizations, the significance of the agreements is occasioned by the fact that it is a means of specifying concretely the terms for carrying out approved plan tasks. In construction work the contract permits clients and contractors to determine more rational economic and production relationships and to consider specific cost-accounting interests thereof, to coordinate dates for fulfilling obligations of the parties concerned and the volume and nature of the services to be extended, and so on. The conclusion of this economic agreement allows mutual monitoring over progress in construction and in the implementation of obligations, and the application, in case of violations, of pecuniary action--to seek the financial sums called for by the contract and to direct them to reimbursement of the losses that have been inflicted.

Under presently existing procedure, a general contract is concluded if the construction of an enterprise or facility will last more than 1 year, or, if the construction will not exceed 1 year, an annual contract is concluded. In addition to the general contract, supplementary agreements to it are now concluded annually. In these agreements, the parties refine the list of the various facilities that are included in the enterprise or structure under construction and are to be built during the plan year, the amounts of construction and installing work for the construction project as a whole and for each facility for the current year, the terms for extending services, and other principles.

In recent years the periods for preparing and concluding contracts and supplementary agreements in capital construction have been greatly exceeding the established periods, and in some cases are being extended to May or June of the year for which they were concluded. More often than not this is caused by the lengthy coordination of the list of facilities and the amounts of construction and installing operations for each of them for the current year. Delay in concluding contracts disturbs the normal course of construction, and in some cases it becomes the cause of late execution of operations and the failure of plan tasks for introducing production capacity and facilities into operation.

Naturally, the question arises: is it possible, under the terms for economic management of construction that are called for by the decree, to do without the annual preparation and conclusion of supplementary agreements to the general contract?

As is known, the subject of a contract for capital construction is the erection of a new enterprise, a facility for nonproduction purposes, or the rebuilding and expansion of an existing enterprise, which the

contracting construction and installing organization undertakes, and the basic obligation of the contractor and the main result of carrying out the contract should be the turnover for operation of the production capacity and facilities by the dates established by the contract.

In considering this, as well as the fact that the general contract should cite, in addition to the data about construction of the enterprise as a whole, a detailed list of the facilities of the complex that are due for early startup, only after the complete construction of which does the client fully accept production capacity for operation and make a settlement for the work done, it can be asserted, with full foundation, that it is not necessary to coordinate each year the amounts for each facility that is included in the enterprise that is being built and to conclude, based thereon, annual supplementary agreements to the general contract.

The periods and sequence of operations for each facility that makes up the enterprise or the complex due for early startup should be determined by the contractor, based upon the indicators of the approved list of construction project titles and the necessity for assuring introduction into operation of the enterprise as a whole or of a startup complex by the established deadline, and in some cases also the introduction, by the agreed deadlines, of facilities that can be prepared to render services, regardless of the introduction of the enterprise or the startup complex into operation.

In determining these dates and the sequence of performing the work on the facilities, the contractor considers the dates that have been coordinated with the client for the arrival of the design and budget-estimating documentation, equipment and special types of materials, and also the necessity to provide optimal conditions for the organization of construction and performance of the operations, which will insure rational and effective use of the contracting organization's supply and equipment resources. The complexes of special construction and installing work that subcontracting organizations are to carry out and which are developed jointly should be broken down in the production operations schedule.

It must be noted that in some cases the conclusion of an annual supplementary agreements to the contract can be required because when plan tasks are specified concretely for the appropriate year, the calendar date for the introduction of production capacity and of facilities into operation and the amount of construction commodity output can be refined.

As for the client's annual presentation of the on-site list of titles of projects to USSR Stroybank, then obviously this procedure must be retained, with the proviso that such a list of project titles will indicate only the overall volume of construction and installing work for the construction project, without a breakdown thereof by the various facilities, and also the refined deadlines for introduction of production capacity and facilities into operation and the amounts of construction commodity output.



Because of the fact that, under the new conditions, carrying out the amounts of work by facility and phase should not be a subject of the contract, the necessity for establishing the contractor's liability for violation of the deadlines for their construction is dispensed with, as the current Regulations About Contracts for Capital Construction require.

The question of contractual interrelations with respect to providing construction with design and budget-estimating documentation requires special review. The decree of the CPSU Central Committee and the USSR Council of Ministers cited above established that, beginning with the plan for 1981, capital construction plans should include only those construction projects for which, on 1 July of the year preceding the plan year, there are design and budget-estimating documentation that has been approved in the established procedure, as well as working drawings for the year's work volume. Since, at the USSR ministry and agency level, the draft of the plan is formulated after 1 July, then newly started construction projects that have not been provided with design and budget-estimating documentation should not be included therein, for this would be a violation of legislation.

This circumstance apparently almost necessitates the introduction of changes in the Regulations about contracts with respect to the liability of the parties concerned. The client's liability for late presentation of design and budget-estimating documentation should be retained for carry-over construction projects. In this case, we bear in mind the fact that the deadlines for providing these construction projects with working drawings and other design and budget-estimating documentation should be determined in accordance with coordinated schedules.

During the Eleventh Five-Year Plan a gradual transition will be made in some branches of the economy to the construction of enterprises (and of structures) through credit granted by USSR Srobybank to the contracting construction and installing organizations in the amount of the full budget-estimated cost for construction of the enterprise (or structure), with turnkey turnover of finished facilities. Such a method of construction foreordains wider rights and additional obligations for these organizations. Thus, when building by the indicated method, the contracting organization takes upon itself, for example, such client obligations as realization of the industrial equipment and of special types of materials, the setting up of equipment, and the presentation of the enterprise that has been built to the state acceptance commission. Under definite circumstances the contractor can assume responsibility for providing the construction designs and budget estimates.

These and other peculiarities of the mutual relations of clients and contractors under turnkey construction that are not mentioned here should also be reflected in the Regulations for Contracts for Capital Construction.

Under the contract method of construction, a substantial portion of the construction and installing work is carried out by specialized

organizations as subcontractors. The mutual relationships of the general contractors with subcontracting organizations are governed, as is known, by a statute approved by USSR Gosstroy and USSR Gosplan. As is the case with contracts for construction, this statute should reflect the orientation of subcontracting organizations to the final results of the work and the changes in obligations and responsibilities of the parties concerned that emanate from this.

The main plan indicator for subcontracting organizations that install the basic industrial equipment, as is also the case for the general contractors, will be the introduction into operation of production capacity and facilities that are ready to produce a product or to extend services. In this case, the volume of construction commodity output of these subcontracting organizations is determined by the budget-estimated cost of the sets of installing work and of special types of work carried out for production capacity and facilities that are to be turned over for operation.

For other subcontracting organizations (those that construct building foundations, erect metal structure, lay utility and service lines, perform sanitary-engineering operations, and so on), the construction commodity output will be the budget-estimated cost of the sets of the appropriate types of work carried out for the enterprises that are being built and its phases or facilities that are to be turned over to the general contractor after their completion within the deadline established by the contract.

Based upon this, the topic of the contract between the general contractor and the subcontracting organization should be the completed sets of special construction or installing work, which is the construction commodity output for this organization.

Improvement of economic relationships in construction also requires refinement of the liability of construction participants for violation of the responsibilities they carry out. This responsibility consists in the payment by the party that violates the obligation of a penalty (a forfeit or fine) as well as the reimbursement of losses caused by the violation of contract terms.

Experience has shown that the effectiveness of pecuniary sanctions depends upon the correctness and validity of their amounts and the observance of equal responsibility of the parties concerned for similar violations of contractual responsibilities.

In this connection it is desirable that the amounts of penalties and fine for certain violations be reviewed, bearing in mind an increase in liability for nonfulfillment of those contractual obligations that directly affect observance of the deadlines for construction and turnover of production capacity and of facilities for operation.

This article does not claim to have laid down an exhaustive list of the changes and addition that should, in our opinion, be introduced into the Regulations about Contractors for Capital Construction. It cites considerations concerning the basic principles of economic relationships in construction, which presuppose not only an expansion of the rights and a raising of the responsibility of participants in construction but also the granting to construction organizations of wider opportunities for providing for the optimal organization of construction operations and for raising the effectiveness of use of production resources to achieve the main goal--the introduction into operation of production capacity and facilities.

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## CONSTRUCTION

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### RURAL CONSTRUCTION COMBINES HAVE SPECIAL PROBLEMS

Moscow EKONOMIKA STROITEL'STVA in Russian No 7, 1980 pp 32-35

[Article by A. S. Miroshnichenko, candidate of engineering sciences:  
'Rural Construction Combines: Experience and Problems']

[Text] By way of discussion.

In accordance with decisions of the 25th CPSU Congress and the July 1978 Plenum of the CPSU Central Committee, much work is being done to create a network of rural construction and housing construction combines. Their number has grown greatly in recent years. Thus, while there were 13 SSK's [rural construction combines] and SDSK's [rural housing-construction combines] at the start of 1977, at the start of 1980 there were 35.

In 1979 USSR Minsel'stroy [Ministry of Rural Construction] rural construction and housing-construction combines did about 149 million rubles' worth of construction and installing work, which produced 810,000 m<sup>3</sup> of prefabricated structure and 1.1 million m<sup>2</sup> of space in agricultural production buildings and 387,000 m<sup>2</sup> of total space in housing and cultural and personal-services buildings were turned over for operation.

The country has already gained the experience of operating the advanced rural construction combines of Glavmosoblstroy [Main Administration for Construction in Moscow Oblast], USSR Minstroy [Ministry of Construction] and USSR Minsel'stroy.

However, the share of work done by SSK and SDSK forces in the total construction program in the countryside still is very small. The development of a network of SSK's and SDSK's should be transformed into a systematic process that is comprehensively substantiated and carefully thought out. Experience indicates that a combine that can operate more effectively than traditional forms for organization of construction can be created only on the basis of a penetrating feasibility study. Existing experience in the development of TEO's [feasibility studies] indicate that the basic prerequisites for creating SSK's (or SDSK's) in most regions of the country are:



the output at one enterprise of a full set of structure for buildings or the above-ground portion thereof; and

a limited radius of activity for the combine (within 100-150 km, depending upon the existence and quality of the roads).

Most combines are being created by introducing into operation either existing construction-industry enterprises and existing or newly established PMK's [mobile mechanized columns] (or SPMK's [rural mobile mechanized columns]). At places of concentrated construction, where the jobs are at a great distance from the SSK's base, standing operating construction sections (PDSU's) can be established, with a composition that includes brigades (or flow-line groups) of erectors and workers of the general construction trades, for executing the whole set of operations for the underground portions of buildings. The manning of each PDSU is determined by the amounts of work and the standard construction periods.

It is most desirable that the SSK (or SDSK) management staff be located where the industrial portion of the combine is found.

Depending upon what is being produced by the industrial enterprises, the combines can be specialized in the erection just of agricultural production buildings, housing, or cultural and personal-services buildings (the SDSK's) or they can be of a composite type, that is, specialized in the erection of all three types of buildings (as a rule, in the latter case, of two or three series).

Rural construction combines are subdivided into two types. The first includes organizations, all of whose subunits are on a single construction balance sheet. The second are of two types--constructional and industrial.

A single balance-sheet answers completely the idea of combined production. It enables the elimination of economic, administrative and juridical barriers between the industrial enterprises and construction subunits that are included in the combine, and helps in the organization of their relationships on internal cost accounting principles. In this case the activity of all SSK elements is oriented to achievement of the final aim--the introduction into operation of facilities, which corresponds to one of the basic requirements of the party and government decree about improving the economic mechanism.

As experience indicates, during the organizational period of the combines, when mastery of the capacity of the industrial enterprises outpaces growth in the amounts of construction and installing work that is done by construction subunits, the results of the combines' activity can also be reflected in two balance sheets, where there is one current account. However, when the industrial enterprises master about 80 percent of design capacity, and their output will be consumed by their own construction subunits, it is desirable that the combines have a single construction balance sheet. It is much easier in this case to organize the output of complete sets of items, to increase factory fabrication of output, and so on.

In most cases SSK's operate as head subcontracting organizations. They do all the general construction work on the building (except for the below-grade operations). In order to carry out internal sanitary-engineering and electrical-installing work and to install equipment, the combines enlist the services of specialized subcontracting organizations on a contract basis. General construction PMK's of the trust, acting as general contractors, do work to prepare the site and to lay footings and engineering and utilities networks and lines, and they also erect simple buildings at the facility (boilerhouses, transformer substations, and so on) if they are built from structure not produced by the SSK. The general contractor is also obligated to provide the SSK's in the established procedure with sanitary, personal and other services necessary for doing the work at the site, and also, jointly with the SSK, to provide for turnover of the facility to the workers and to the state commissions.

Construction machinery and automotive transport for the SSK are obtained, as a rule, on a contract basis from mechanization administrations and motor-vehicle transport subunits of the trusts, to which special sections and groups for machinery and vehicles that belong to the combines are assigned.

In order to organize more effectively the work of the combines, especially those that are erecting agricultural production facilities, a number of important problems must be solved in the shortest possible time.

A most important prerequisite for industrialized construction by the SSK method is the availability of a limited mix of unified structure that is designed for large-scale factory manufacture and finishing. However, a substantial portion of existing standard designs do not meet these requirements at present.

According to TsNIIEPsel'sstroy [Central Scientific-Research and Design Institute for Standard and Experimental Design for Rural Construction] data, more than half of the buildings whose designs were included in the list of standard designs, as proposed by design organizations, which were introduced into operation in 1978, were built with the use of structure intended for industry, housing and public buildings. Abolished or individualized structure was used in 52.3 percent of the designs here. In all, 95 series of structure had been recommended for production buildings, 24 of which had been abolished.

On-site unification of three-dimensional layout and constructional solutions had practically not been conducted for structures that were included in the existing standard designs for livestock-raising and poultry-raising complexes. This concerns mainly buildings of subsidiary and auxiliary purposes, the degree of prefabrication of which is one-half to three-fifths that of the main buildings.

The conversion of SSK's to the production and use of structure for the main production buildings with 6-meter columnar spacing will enable reduction of the budget-estimated cost of construction by 10-12 percent,

steel consumption by 8-12 percent, concrete consumption by 9-10 percent, and labor intensiveness in erecting the buildings by 12-14 percent.

In many cases the reinforced-concrete structure that is now being produced by the industrial bases of the combines does not have a high degree of factory prefabrication. For example, a Rosorgtekhsel'stroy [State Trust for Industrialized Rural Construction in the RSFSR] analysis of the activity of 19 RSFSR Minsel'stroy combines indicated that a high degree of factory manufacture is achieved in the making of outer wall panels only at 9 combines, in the manufacture of interior wall panels and partitions only at 3 combines, and in making roofing slab only at 3 combines.

TsNIIEPsel'stroy, Gipronisel'khoz [All-Union State Design and Scientific-Research Institute for Standard and Experimental Design for Agricultural Production Complexes and for Enterprises of the Biologicals Industry], NIIZhB [Scientific-Research Institute of Concrete and Reinforced Concrete] of USSR Gosstroy, and Mosgipronisel'stroy [Moscow State Design and Scientific-Research Institute for Rural Construction] and other institutes are working to increase the degree of factory manufacture of structural items and to consolidate these items. Structure for wall panels, three-layer panels and lightweight concrete panels of increased factory prefabrication, which include the installation of window and door units and of structure for socle panels, which obviate foundation beams, have been developed. With the use of such panels, the degree of prefabrication of buildings is increased, and labor expenditure at the construction site is cut by one-half or two-thirds, steel consumption is reduced 20-30 percent, and the budget-estimated cost of walls is reduced 5-10 percent.

Until now there have been no standard designs for SSK's with all the services and sections necessary for carrying out the full set of installing, construction and finishing operations for the above-ground portion of buildings with in-house forces, using flow-line construction methods widely. What is needed is a design not of a ZhBI [reinforced-concrete products] plant but of bases for rural-construction and housing-construction combines that will meet the requirements for completely outfitting facilities with engineering services and for transferring a maximum number of the processes and operations for erecting buildings to the factory environment.

One of the main factors that determine all the results of the combine's operations is stable output of completely outfitted production. The outfitting of a building, as is known, is the main goal, to which all the activity and all the efforts of the SSK's industrial base must be subordinated. At the same time, many combines are producing a substantial portion (sometimes as much as 50 percent) of other articles, which are delivered to general-contracting trust PMK's or to other construction organizations. The existence of this output and of a plan for realization often leads to a reduction in the amount of the things needed to outfit buildings. Moreover, practically none of the combines are yet achieving rhythmic output of all the articles that make up the outfitting set within the prescribed time period. The stopping of one of the production lines or other holdup in the output of just one type of product leads to a pile-up

at the finished-products storage or at the construction sites of a large number of products that have not been made into complete sets, making it very difficult to complete the preparation of complete sets simultaneously with the continuing output of later sets of products.

Deficiencies in SSK planning are an important cause of the still low effectiveness of SSK activity. Plans for an SSK should, in our opinion, correspond to the capacity of its industrial portion. The lists of facilities being built, and also the plan for turning them over for operation, and the work of the clients and design institutes on site adaptation of buildings to be made from the combine's structure should be subordinated to this factor. Practically not one combine is observing these prerequisites yet. Many SSK's, even in the middle of the year, do not have a full list of the facilities at which they will have to operate before the end of the year.

The main indicators for planning and evaluating SSK activity should include, in our opinion: the introduction into operation of buildings, in square meters of their total area, and the production of sets of articles, in square meters of total area of the buildings and in cubic meters of the articles themselves. Right now the workload of the combines is, as a rule, planned in terms of cost (the wage group of the supervisors, engineers, technicians and SSK staffs are also determined by this), and the trust or Union-republic minister's order makes the distribution of the industrial output.

It is necessary to use the incentive role of in-kind indicators correctly and to grant the SSK completely the rights of a socialist state production enterprise. This will undoubtedly help to raise the effectiveness of new and progressive forms for organizing rural construction.

The practice of SSK forces performing only installing work at facilities continues. In 1979 certain SSK's (Slutsk and Kalinin) began to carry out part of the post-installation operations with their own forces, but the share thereof in the total amount of operations during erection of the above-ground portion of the building still is low. This leads to an increase in the amount of uncompleted work, and a prolongation of construction time for the facilities. Thus, in 1978 the area of buildings erected by the Mirgorod SSK but not turned over for operation exceeded its annual capacity. A similar situation was created also in the area of activity of the Slutsk, Soldato-Aleksandrovskoye and certain other SSK's.

An important reserve for improving the work of rural-construction and housing-construction combines is more precise mutual coordination of the activity of the general contractor, the combine and subcontracting organizations. This relates especially to the below-grade operations. Most SSK's and SSK's do not at present perform below-grade work, although practically all of them produce articles for the below-grade cycle in the set of articles for the building. Preparation of the underground portion of buildings by general-contracting PMK forces often is done not in time and not in the rhythm that is required for flow-line type production and



the erection of buildings by SSK forces. Many combines therefore experience a severe shortage of below-grade work throughout all their activity.

At the same time, the following must be kept in mind. Where the combine operates over a large area, over several oblasts, it is quite complicated to organize execution of the below-grade work with its forces. A number of difficulties arise here, of both an organizational and management nature and of an economic nature. It is hardly desirable in such cases to bring in, for example, earthmoving machinery and so on, over great distances to do the earthmoving work. Therefore, it is more rational in such cases to charge regional general-contracting organizations with performing the below-grade work.

The introduction of facilities into operation is currently being hindered substantially by delay in the work of laying utility and service lines and work on civic improvements. This circumstance also occurs, of course, during construction by traditional methods. However, when it is possible to greatly reduce the time required for erecting the "boxes" of buildings by means of the SSK, the losses that arise from delays with utilities, services and improvements, acquires great significance.

Experience in organizing urban housing-construction combines indicates that many of the difficulties that are now being experienced by rural construction combines were once typical also for them. This concerns the output of complete sets of structure for buildings, planning of the activity, the organization of below-grade work, and other questions examined above. However, under the more complicated conditions of rural construction, these difficulties are being experienced in a greater degree. Therefore, in using the operating experience of urban DSK's, the attitude toward it should be creative and well-thought-out, giving consideration to the specifics of rural construction.

The problems posed can be solved successfully only after amalgamation of the efforts of combines, trusts, scientific-research institutes, orgtekhstroys [state trusts for industrialized construction], USSR Minsel'stroys, and Union-republic minsel'stroys.

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## CONSTRUCTION

### PLANNING OF CONSTRUCTION-ECONOMICS EXPERIMENTS TO BE FORMALIZED

Moscow EKONOMIKA STROITEL'STVA in Russian No 7, 1980 p 35

[Article: "After the Publication of EKONOMIKA STROITEL'STVA]

[Text] The article by Doctor of Economic Sciences G. I. Smirnov, "Improve the Management of Economic Studies" (EKONOMIKA STROITEL'STVA, 1980, No 4), proposed to raise the effectiveness of economic research by expanding the scale of experiments in the area of construction economics and also to establish a procedure for planning and financing research and generalizing the results thereof.

This proposal was examined by Glavstroynauka [Main Administration for Scientific-Research and New Technology in Construction] of USSR Gosstroy jointly with the Construction-Economics Section. It was noted that the question was posed correctly in principle.

Under modern management conditions, when the specific-program method for solving scientific problems is decisive, the head scientific-research institutes will call for an experimentation stage in the programs being developed. In so doing, the financing of the scientific research, beginning with the plan for 1981, will be conducted on the basis of a line-item topic that is included in the scientific and technical program. Thus, because of expansion of the specific-program method of planning scientific research, the conduct of experiments will be assigned under a planned procedure.

With a view to putting order into the planning and organization of economic experiments, Glavstroynauka has charged NIIES [Scientific-Research Institute for Construction Economics] of USSR Gosstroy with preparing a draft of a "Statute on the Procedure for Planning and Organizing the Conduct of Economic Research Experiments in the Area of Construction," taking account of the proposals expressed by the author.

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## CONSTRUCTION

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### COST ACCOUNTING PRINCIPLES SPELLED OUT FOR CONSTRUCTION

MOSCOW EKONOMIKA STROITEL'STVA in Russian No 7, 1980 pp 44-49

[Article by Yu. I. Khrakovskiy, candidate of economic sciences, and Ye. P. Zavorokhin, senior economist of the Planning and Economic Incentives Section of NIIES [Scientific-Research Institute for Construction Economics], of USSR Gosstroy: "Cost Accounting in the Construction and Installing Production Association"]

[Text] Cost accounting is a method of socialist management that requires commensurateness in terms of cost of the expenditures and the results of economic activity and the reimbursement of organizations and enterprises for expenditures from their own income, with an assurance of the profitability of production.

As a method for the planned conduct of the economic affairs of enterprises and organizations, cost accounting is based upon material incentives for and the material responsibility of workers for the correct and economical use of all resources, the capability of a production activity to support itself, independence of the management of current operations, and control by the ruble.

Cost accounting, along with other economic levers for influencing production--price, profit, credit and forms of material incentives--are part of an overall system of methods for controlling the socialist economy.

Each cost-accounting organization or enterprise has been given incentives to support the output of products at least cost in labor and funds, seeing to it, upon realization of the final product, not only that expenses for production are reimbursed, but also that a profit is earned. In so doing, the basic ways for obtaining a profit should be: increasing labor productivity, reducing the operating costs of production and increasing the quality of the product, and implementing a strict economizing regime. A cost-accounting organization or enterprise is on an independent balance sheet, has a final system for accounting for the results of economic activity, has a current account at the bank, and, in the established procedure, makes settlements with suppliers, makes wage-fund payments, and executes other payments and settlements. A cost-accounting organization

or enterprise possesses all the rights of a juridical person, that is, it bears liability, and it can be a plaintiff or a defendant in court or an arbitration proceeding.

Cost accounting is closely connected with the process of implementing the economizing regime, that is, the search for reserves for reducing operating costs for producing the product and for raising the profitability of production. The main ways for reducing operating costs for producing the product are a continuous growth in labor productivity, the systematic saving of material resources, and a reduction in expenditures for services and for the management of production. Growth in labor productivity leads to a lowering of labor expenditures and overhead costs and a reduction in the share of amortization of fixed capital per unit of output and of expenditures for upkeep of the administrative staff. The fewer the material and other resources that are expended per unit of output, the greater the reduction in operating costs of the product produced. The elimination of surplus staff, a reduction in the number of tiers in the management structure, the consolidation of small subunits, the mechanization of computational operations, and other similar measures will reduce expenditures for production management and will enable a reduction in production operating costs.

One of the important economic indicators of an organization's or enterprises's economic activity is profit. Profit and profitability characterize in a greater degree than do operating costs the effectiveness of an organization's or enterprise's work.

Cost accounting in construction has its peculiarities, which are occasioned by the specifics of construction operations. The CPSU Central Committee and USSR Council of Ministers decree of 12 July 1979, "On the Improvement of Planning and Strengthening of the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality," established that the basic cost-accounting element of construction work should be the construction and installing production associations, but in some cases the trusts.

The basic principles set forth above for implementing an organization's or enterprise's cost accounting are extended fully to the construction and installing production association. However, in such an association there are peculiarities in implementing cost accounting, which are set forth below.

The composition of the construction and installing and production association, which, for brevity, we shall call the association, will, as a rule, include, along with the subunits that carry out the construction and installing work, industrial enterprises that provide construction projects with the appropriate structure, articles and local building materials, transport subunits, and the industrial production outfitting administrations, with subsidiary operating facilities and a storage activity. In many cases the association will also include a housing and municipal services office, children's preschool institutions, training combines, Pioneer camps, clubs and so on.



Such an association is a multiple-branch organization, which is capable of accomplishing with the forces and resources of the subunits that comprise it and with the acquisition of outside subcontractors for special and installing operations, the entire set of construction and installing operations that are associated with output of the final construction product.

The CPSU Central Committee and USSR Council of Ministers decree indicated above calls for further development of cost accounting in construction and installing organizations on the basis of five-year plan tasks and long-term economic standards. This requires that the association work out a major set of questions for organizing cost accounting.

The association's activity is governed by the Statute about the Socialist State Production Enterprise, the Statute about the Construction and Installing Production Association and other documents that govern the economic interrelationships among cost-accounting organizations.

Full responsibility for carrying out plans for economic and social development, for the organization of construction work and for the normal functioning of all the enterprises and organizations that enter into it is decisive in the organization of the association's production-economics activity.

In accordance with the association's organizational structure, cost accounting should be performed within the association itself--internal cost accounting within each production unit (SMU [construction and installing administration], PMK [mobile mechanized column], DSK [housing construction combine], UPTK [production-equipment outfitting administration], construction-industry enterprise, transport organization and so on that is directly subordinate to the association, on-site (or section or department) cost accounting within construction sections, enterprise departments and other appropriate production units subordinate to the association, and brigade cost-accounting within the brigade.

The basic principle of cost accounting and of cost-accounting relationships in the association lies in the fact that each production unit, section, department and brigade answers only for the results of its own production-economics activity, for the results that depend directly upon it. The principles of cost accounting are manifested more fully in the association itself, which enjoys the rights of a socialist state production enterprise.

Full cost accounting in the association should embrace the whole system of production-economics ties with external organizations and with the production units that comprise it, as well as the economic interrelationships among them. External ties are regulated basically by existing standards documents and should be built upon a combining of centralized economic-planning methods for control with economic self-sufficiency of the association. The basis of the association's cost-accounting relationships with clients, external subcontractors and the suppliers of materials, structure, articles and construction equipment are economic contracts. The

association bears responsibility for carrying out all contractor obligations, regardless of the participation of production units in the concluding of contracts.

Based upon the principle that cost accounting is a method for the planned conduct of economic operations, the association that operates by cost accounting should solve the following basic tasks: organize fulfillment and overfulfillment of the tasks for introducing into operation the production capacity called for by the plan, both for total construction commodity output and for the amount carried out by in-house forces, broken down by client, for growth in labor productivity, for the introduction of new technology and for profit obtained in accordance with settlements under which all expenditures for performing construction work are reimbursed by funds obtained at the turnover to clients of finished capacity and facilities, which are the final construction product.

The association should so organize the execution of all types of construction and installing work that the funds obtained from clients for finished facilities that have been built not only cover all expenditures for the performance of construction and installing work but also enable a share of net income to be obtained in the form of profit. Growth in profit can be provided for both through an increase in the amount of output realized and through improvement of the qualitative indicators of the production thereof, primarily by reducing production outlays and raising labor productivity.

An increase in profit by improving qualitative production indicators is of the utmost importance, and it is determined on the one hand by the budget-estimated cost of the operations and, on the other, by the operating costs thereof. The operating cost of construction output is a function of the activity of each production unit, that is, on how well, qualitatively, the entire process of construction work has been organized.

It is considered that the principle of cost accounting can be implemented where there is a stable budget-estimated cost, which the association should, at the proper time, coordinate on, and then it should accept the budget estimate. After the association accepts these estimates, the approved budget-estimated cost of the construction and installing work for erecting the buildings and structures should be definitive, in accordance with paragraph 42 of the Regulations about Contracts for Capital Construction. This question is a basic one for cost accounting in the association, since it has been found in some cases that the budget-estimated cost for the construction of facilities did not acquire full stability, which led to a reduction in planned profit and lowering of other indicators of the construction organization's work.

The association is obligated to develop a stroyfinplan [construction financing plan] for each year planned, giving in the required detail the plan tasks as to construction-work volume, labor, operating costs, the supplying of materials and equipment, the realization of construction output, financing, profit and economic-incentive funds. The association's

stroyfinplan should become the organizing basis for the production-economics activity of the whole network of the association's structural subunits.

The association should conclude at the proper time all the contracts with outside organizations: clients, subcontractors, the suppliers of structure, articles and materials, and other economic organizations that are called upon to serve or participate in the construction of the buildings and structures that the association is performing. Some contracts can be concluded by production units, but on behalf, in each case, of the association.

The association should work out and confirm a series of standard documents for subordinate production units and their subunits, including the planned settlement prices for materials, structure and articles, production norms for the consumption of materials by type of work, planned settlement prices for the use of machinery and mechanisms and the services extended to construction organizations, norms for losses during transport and for the use of materials, structure and articles, and standards for deductions from gross profit for forming economic incentive funds, both for the association and for certain subordinate production units.

The association has been obligated to organize accounting for the fulfillment of the production tasks, for the technical and economic indicators established by the stroyfinplan and for observance of the norms and standards for the construction operations for each production unit, section, department and brigade that have been approved by the association. Information should be created from the data of the indicated accounting that permits a definite subunit of the association to adopt at the proper time in a current-operations procedure the necessary measures to insure fulfillment of the tasks or terms specified in the association's stroyfinplan.

The association should establish a procedure for the use of the profit left at its disposal: for the payment of interest for bank credit (except for interest on credit to cover expenditures for uncompleted construction work); for the formation of economic incentive funds; for the financing of capital investment for in-house construction; for the formation of a single fund for the development of science and technology; for growth of in-house working capital; for maintenance of the staff of superior organizations; for the formation of a reserve in the association for extending financial assistance to subordinate production units and other economic units; and for other planned expenditures.

Cost accounting by the association calls for both collective and personal incentives for workers for the final results of the association's work. The system of economic incentives that is used in a cost-accountable association should call for material awards to collectives and to individual workers for the fulfillment and overfulfillment of various technical and economic indicators and production tasks.

The production-economics activity of construction and installing subunits, construction-industry enterprises, and the transport and other organizations that make up the association is performed, as a rule, on the basis of internal cost accounting.

In order to organize internal cost accounting, the association should develop and approve a Regulation about Internal Cost Accounting in the Association. When developing the regulation, the specifics of the subunits' operations is considered. Internal cost accounting within the association should be based upon the following:

a system of plan, evaluative and reporting indicators for production units and lower-level elements;

principles for forming economic incentive funds under systems of standards that consider the degree of participation of the production units in the creation of the final construction product;

basic measures for supporting the prescribed level of labor productivity and profit;

the organization of cost-accounting relationships among all elements for mutual pecuniary responsibility and incentives; and

the organization of a system of awarding bonuses from economic incentive funds and the wage fund as a function of the main technical and economic indicators fulfilled.

It is characteristic of construction and installing production associations that the production units that comprise it are, as a rule, specialized, and their functions have a basically production orientation, and a substantial share of the functions associated with mutual relations with organizations external to the association are carried out directly by the staff of the association and its services.

The association's construction subunits should possess independence in production-organization activity based upon their technological or branch specialization. Within each subunit the current-operations services should be identified, based upon the fact that in the association the basic economic-planning functions for production subunits have been centralized and all accounting for the cost accounting of each production unit is performed by the association staff. Tasks and technical and economic indicators are established for each production unit of the association, based on these organizational solutions.

It is desirable that construction subunits that act as general contractors on behalf of the association approve the plans for construction work basically in accordance with those same indicators according to which the association's plans are approved but with the use of plan-settlement prices and standards established by the association.



For specialized subunits of the association--internal subcontractors--the following should be approved: facility-by-facility schedules for the execution of operations, the amounts of special construction or installing work that are subject to turnover to the general contractor, the task for reducing the production cost of these operations, growth in labor productivity, the ceiling on manpower, the total wage fund, and the amount of supply and equipment resources, based upon the production norms approved by the association.

The actual and planned expenditures of labor and material resources are compiled at the end of each month, based upon accountancy and current-operations reporting, the results of the production-economics activity of each production unit of the association is determined for the past month and since the start of the calendar year, and, in accordance with the results, measures are set for executing operations for the coming month and proposals are made for material incentives.

For each production unit an internal account is compiled with the use of plan settlement prices and standards approved by the association, and a report is rendered on the status of the prescribed production plan and the main technical and economic indicator.

The results of the activity and the reports about the status of fulfillment of the plan tasks are reviewed by a commission specially appointed by the association, which, after evaluating the results of the work of each production unit, presents its recommendations to the association's management.

On-site cost accounting covers the activity of production operation sectors and shops and the departments of construction-industry enterprises. The current-operations and economic independence of these elements is restricted by the framework of their construction and installing administration of the enterprise, so on-site cost accounting of sections and departments is closely connected with current-production planning.

Plan tasks are set for each section for the month in accordance with such indicators as: the introduction of facilities into operation, construction and installing operations volume--the total and the amount for construction commodity output, worker manning, including wage workers, based upon the production costing that has been worked out, the task for growth of labor productivity (output per wage worker and per employee) based upon the organizational and technical measures stipulated in the stroyfinplan, the fund for paying workers, including wage workers, the average wage per wage worker, the requirement for the main construction materials, structure and articles in accordance with production norms for their consumption, and their cost--in accordance with plan-settlement prices, and the requirement for construction machinery, mechanisms and transport equipment.

Payment for the operation of machines and mechanisms when carrying out construction and installing operations should be made in accordance with appraisals of the amount of work carried out per unit, and, in some cases,

when such a direct accounting is impossible, in accordance with the estimates of the cost per machine-hour (or machine-shift), that were worked out by the association, taking into account the specific conditions of their operation at the construction sites.

Overhead expenditures are determined in accordance with the budget estimate worked out on the basis of approved staff schedules and on calculations of other parts that are counted in overhead expenditures.

At the end of the month, based upon the data of the bookkeeping and current reporting, actual and plan expenditures for labor and material resources are compiled, and the results of the economic activity of the section and the department are determined. With successful fulfillment of the tasks, wage workers and line engineers and technicians are given bonuses. Along with the generally accepted system of economic-planning indicators for the operation of the cost-accountable sections enumerated above, a plan for profit or a plan for sector operating costs is established.

The material incentive fund that is formed from profit is the source for current bonus awards for engineers and technicians. Because of this, planning and accounting for operating costs and for profit for a sector becomes a mandatory element of the system for current production planning. It is necessary to determine the elements of production costs, which depend upon the activity of each sector.

An important part of on-site cost accounting is the brigade contract, which calls for the development of lower-level cost accounting in construction, based upon the scientific organization of work and an expansion of the participation of wage-worker collectives in production management. The purpose of the brigade contract is to raise labor productivity and to accelerate the introduction of facilities into operation with high quality and at least expense.

Accounting for expenditures for the execution of operations under the brigade contract should provide for a comparison with the data by article of expense called for in the settlement cost of the work that is entrusted to the brigade for fulfillment. Materials, structure and articles expended by the brigade are counted according to plan-settlement prices and are written off for production on the basis of the reporting forms about materials consumption that are in effect in construction or in accordance with standard charts, depending upon the amount of work done.

The basic wage fund for wage workers of the brigade, as well as the overhead expenses that depend upon its activity and are stipulated in the settlement cost for the work done are computed for the amounts actually performed. Expenditures for the mechanization of operations are counted at plan-settlement prices, based upon the number of machine-hours (or machine shifts) that have been worked, and on-site transport services are settled for the amounts actually rendered. Expenditures for executing construction and installing operations are computed by facility in the cost records reports and in the log for the mix of articles expended,

which comprise the settlement cost of the operations. The difference between the settlement costs and the actual production costs of the work done makes up the saving achieved by the brigade. In this case, the savings should be achieved without detriment to the quality of the work.

For purposes of orienting the activity of construction-industry enterprises to the final results of the association's work, the tekhpromfinplans [the technical, industrial and financial plans] of these enterprises should be developed on the basis of and in accordance with plans and schedules for deliveries of complete sets of structure and articles to the facility. The profit of the indicated enterprises will be formed here by the difference between the production cost of the output, which is determined on the basis of costing procedures, and existing wholesale distribution prices under which this product is released to construction and installing subunits.

When evaluating the activity of construction-industry enterprises, the most important indicators should be the dates and level of fulfillment of the plan for deliveries of complete sets of equipment, and also the degree of factory preparation of articles. The basis of the organization of transport subunit activity should be the fulfillment of schedules for bringing material resources to the construction sites.

Cost-accounting relations among construction organizations, industrial enterprises and transport subunits should be established by the association to take into account the concrete peculiarities and specifics of production. In so doing, different variants can occur--some of which are settlements for the haulage of freight according to state schedules in effect for automotive hauling; another is the use of plan-settlement rates that are developed and approved by the association.

Cost accounting in the production-equipment outfitting administration (UPTK) and the planning of its activity should be aimed at fulfilling schedules for shipments of complete sets of items to the facilities, and the results of the production-economics activity should be determined by the fulfillment of the schedule of these shipments and by a comparison of the budget-estimated cost of the material resources shipped (taking into account in some cases the established allowances) with the actual expenditures of the UPTK for these purposes.

The cost-accounting interrelationships of the associations with the budget will be determined by payment for the use of production capital and payments of free residues of profit, if they are called for by the financing plan. Payment for the use of capital should be introduced directly by the association in accordance with the indicators for its activity, regardless of the indicators for subordinate subunit activity and the status of the accounts with them. Differentiated standards for payment for the use of productive capital by subunit, as one of the elements of internal cost accounting, can be worked out and approved by associations, taking into account the specifics of the activity of the various construction subunits.

In the SMU and in organizations equated to them, the procedure for profit formation will be determined by the nature of the functions they fulfill while creating the construction commodity product.

In subunits that are performing the functions of general contractors, the planning of profit should not differ in principle from the procedure adopted for the association. However, in so doing, it should be considered that some types of expenditures can be made directly by the association, bypassing subunits subordinate to them.

It is desirable that specialized subunits plan savings by reducing budget-estimated costs for the amounts of construction and installing work performed. The association can consider this saving as an internal cost-accounting profit for evaluation purposes and for incentives for current results of the production activity of the indicated subunits. In order to determine the shared participation of each specialized subunit in profit from realization of the finished construction product and to evaluate the current activity of these subunits, a facility-by-facility accounting for expenditures should be organized, in our opinion.

In accordance with the decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979, simultaneously with approval of the five-year plan, associations should establish standards for the computation of economic incentive funds for the five-year period, with a breakdown by year. The approval of stable standards for the five-year period will raise the motivation of the whole association collective to develop strenuous plans and to adopt counterplans.

Within economic incentive funds, the association should earmark a portion of the centralized funds for bonus awards to staff workers of the association and of subunits that do not have sources for forming funds for material incentives, which the association gives directly to subunits, for the augmentation of incentive funds for various production units when indicators of their activity have been degraded by factors not attributable to them, and for awarding bonuses to socialist competition winners. Standards for making deductions from profit into the economic incentive funds of the association and the subunits that make it up are developed with the participation of the appropriate trade-union organs.

When there are objective possibilities and appropriate reserves are discovered, plans that are more demanding than the association's can be approved for subunits. Under the existing rules, the magnitude of this can vary from 2 to 5 percent for various indicators of the association-approved plan. When setting the amounts of economic-incentive funds, the association should consider how strenuous the plans of the separate subunits are.

The establishment of a well-proportioned system of cost accounting in the construction and installing production association that embraces all of its elements, both as to the administrative level and as to the type of



activity, should be one of the factors that supports fulfillment of the decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979, particularly as it relates to construction operations.

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UNSOLVED PROBLEMS HINDER COST-ACCOUNTING GROWTH IN CONSTRUCTION

Moscow EKONOMIKA STROITEL'STVO in Russian No 7, 1980 pp 49-54

[Article by M. B. Podnos, candidate of economic sciences and section manager of NII OUS [Scientific-Research Institute for the Organization of Management in Construction] under MISI [Moscow Construction-Engineering Institute] (men V. V. Kuybyshev: "Problems of Establishing Cost Accounting in Construction")]

[Text] By way of discussion.

Major reserves for raising the effectiveness of construction production can be used as a result of improving the branch's economic mechanism and further developing and intensifying its cost-accounting relationships.

The basic principles of cost accounting, which is one of the most important methods for controlling the national economy, were formulated while the country was building up experience in the management of construction. Based upon a study and upon a generalization of it, the concepts of full cost accounting and of branchwide and regional cost-accounting mechanisms have appeared.

Cost-accounting principles have been perfected mainly relative to the basic management element--the socialist state production enterprise. In so doing, cost accounting was not complete, since expenses for expansion were not counted in production outlays.

Despite the rapid growth of intraorganizational accumulations in the 1950's and 1960's, various enterprises and even branches of the national economy were still not ready to take upon themselves completely the financing of intrabranh specialization, of interbranch cooperation, of introduction of the achievements of scientific and technical progress and of management of the branch. Therefore, a substantial portion of expenditures--costs for all new construction, an expansion of existing production facilities, and about half of the expenditures for rebuilding them--were paid out centrally by the state through the new income of various enterprises and whole branches of the national economy.

Full cost accounting began to be introduced practically in the country only during the past 10 years. Thus the whole instrumentmaking industry has converted to the cost-accounting method of management, planning and financing since 1970. In construction the bases for full cost accounting were laid down in 1975 with the conversion thereto of BSSR [Belorussian SSR] Minpromstroy [Ministry of Industrial Construction] and BSSR Minmontazhspeystroy [Ministry of Installation and Special Construction Work]. Other ministries and main administrations followed them. They were converted, as a rule, in two stages: first, the planning and evaluation of activity according to construction commodity output and the granting of credits for uncompleted work, and then the principle of complete self-support were introduced.

The principles of full cost accounting that have been confirmed in practice have been reflected, as is known, in the decree of the CPSU Central Committee and USSR Council of Ministers, "On the Improvement of Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality." A whole chapter of this document was dedicated to developing cost accounting and strengthening the role of economic levers and stimuli. In accordance with the decree and in order to strengthen particularly the economic responsibility of ministries and agencies for the results of organizational financing activity, a stable standard for deductions from profit that are placed at their disposal (the standard will be established in the five-year plan by year) is introduced. These funds should be used to finance capital investment, to reimburse credits, to pay interest on credits, to increase working capital, to form a single fund for science and technology and economic incentive funds, and to make other planned expenditures that are necessary for developing the industry. If the profit plan is not fulfilled for any year of the five-year plan, the portion of it that remains at the disposal of ministries and agencies is reduced, since total payments into the budget in this case remain the same as before.

The cost accounting to which ministries and main administrations are being converted differs qualitatively from the cost accounting used to organize enterprise activity. The difference consists primarily in the fact that, in the latter case, in the basic element of the management of construction production (the association or the trust), only current outlays for production are repaid: expenditures for acquiring materials, wages, the maintenance and operation of mechanisms, and a portion of overhead expenses. After paying all these expenditures from the earnings received, an organization that has been granted the rights of a socialist state production enterprise should, moreover, obtain a profit that will permit it to pay the state for the use of fixed and working capital, to participate in financing a portion of statewide expenditures, to form its own economic incentive funds, to cover expenditures for the upkeep of the housing inventory, Pioneer camps, kindergartens, and so on. In this case, a higher organ--a middle element of management (the republic ministry or the territorial main administration) and partially the state, through an appropriate financing organ, take upon themselves to a great extent one of the important and extremely substantial portions of expenditures--expenditures

for expanding production (capital investment, increase in working capital and the training of personnel).

When operating on the principles of cost accounting for the middle element of management, the state does not, as a rule, participate in financing expenditures for expanding production. These are covered by profit and by other funds that are at the disposal of the republic's construction ministry or main administration.

The prerequisites are now being created for organizing activity on the basis of the principles of full self-support of Union and Union-republic construction ministries. However, republic ministries and the territorial main administrations have a still greater potential for this.

Certain specific features of developing cost accounting in construction are associated with the territorial-branch principle of managing it. In particular, in some parts of the country the territorial main construction administrations, although they are a part of the republic's single economic complex, have not been directly subordinated to the republic government, and in solving some economic questions they have the rights of Union ministries.

The transfer of republic construction ministries and territorial main administrations to full cost accounting has posed some problems for planning and financing organs and economic scientists. These include, primarily:

development of an economic theory for the functioning of a single cost-accounting system that embraces the branch's management staff, the required intraindustry management staff, and all the elements of the system, from the association or the trust to the brigade, inclusive;

change in the organizational structure for controlling the branch in accordance with the new circumstances, and regulation of the rights and responsibilities of construction subunits according to the hierarchical levels of management;

identification of the peculiarities of full cost accounting in the regions (particularly the relative economic and managerial singularity of the latter) and of the mutual ties of branch and regional cost accounting (especially when territorial organs for controlling construction are included in the republic construction ministry);

determination of the rational limits of intrabranh and regional specialization and cooperation in order to provide a stable level of profitability for a cost-accountable ministry, main administration or association; and

the development of scientifically validated principles for distributing income among the enterprise, the branch and the state, and substantiation of the terms for the use of state financing for various expenditures that are of economywide importance.



Solution of the enumerated questions should be continuously linked with a check of the conclusions in practice and with a deep study of experience.

Analysis of the activity of construction ministries and main administrations under the new conditions of management makes it possible to find ways for perfecting the details of its mechanism, based upon comprehensive research of the problems of organizing cost accounting.

The main prerequisites for the functioning of each cost-accounting element\* of the cost-accounting system in construction are, as is known, commodity-monetary relationships, which rest, in our country, upon the economic laws of socialism, particularly the laws of cost, planned proportional development, the distribution of income for labor, and the relative individuality of production units.

However, if the first two characteristics are reflected equivalently in the activity of all management elements in national-economy branches and in the national economy as a whole, then the relative individuality of each element will be manifested in a different way: the higher it is on the hierarchical ladder of management and the more complicated the tasks that it faces, and the more significant its mission, the more individualistic it will be.

At present, under the terms of branch cost accounting in general, and, in construction in particular, with change in the legal and property independence of the basic and middle management elements, change also occurs in the degree of their relative individuality. The rational limits thereof for each of the branch's management elements are the subject of scientific inquiries.

Such an effective form of cost accounting as the brigade contract—a new form of cost accounting in the primary (bottom-level) production unit has been used widely in construction organization practice in recent years. The branch has gained experience, as has already been noted, and there is fairly precise organization of cost accounting in the trust. There are definite achievements in setting up cost accounting relationships within the republic ministry and the territorial main administration. Thus, cost accounting principles are now being implemented at all levels of construction management, except at its highest element—the All-Union and Union-republic ministry. Under these circumstances there is a potential for perfecting cost-accounting relationships in all elements of the cost-accounting system and at all levels of construction management where there is an optimal combining of branch and regional features.

\*By cost-accounting element is meant an element of a control system with the principles, internal attributes and methods for organizing cost accounting that are inherent to that element; by cost-accounting system is meant branch-of-the-economy cost accounting for a two-level system for managing construction with the general principles of cost accounting, but with different external criteria and methods for organizing it at each level.

The recoupment of expenditures is a most important principle in the functioning of a cost-accounting system. The degree of self-support is not identical in the various elements, but the principle is mandatory for all.

In speaking about the cost-accounting system, the external criteria of cost accounting must also be kept in mind. These include, when speaking about the brigade, the contract that it concludes with the construction organization. For the trust or the association, the state fund, the account for financing the economic activity, the final balance, and so on, are the external criteria. For the main administration or republic ministry that is operating on the self-support principle, there are the economic and financial reserves for managing the system, the standard distribution of profit, mutual settlements with the budget for the system as a whole, and so on.

However, in practice, such a cost-accounting system does not exist in construction. Today only a third of the brigades are operating under contract, and, as selective inquiries indicate, only 62 percent of the worker time. Only a tenth of the bottom-level collectives that have undertaken contracts are being provided with materials without interruption, 42 percent of them are supplied with a delay of 2-3 days, and the rest of them are supplied irregularly. As a result, the advantages of the brigade contract are lost.

And certain legal questions have not been solved for wide introduction of the new form of bottom-level cost accounting. In particular, consolidated brigades (in Vinnitspromstroy [Vinnitsa Industrial Construction Combine] and Glavkrasnoyarskstroy [Main Administration for Construction in Krasnoyarskiy Kray]) after having been organized, in essence, with a variety of sectors and having taken upon themselves a substantial portion of the commitments thereof and commitments of the construction administrations that had been eliminated, have not received the appropriate rights.

Unfortunately, in not one of the republic construction ministries or main administrations that are working under the principles of the Belorussian experiment has the new form of bottom-level cost accounting become the basis of management. The share of bottom-level elements that are working under contract is not more than 60-70 percent of the total number of these organizations.

Thus, full self-support of an upper element of the cost-accounting system that now exists (the republic ministry and the main administration) does not rest upon a firm foundation of cost accounting in the primary construction collectives--the brigades, and the cost accounting of the basic element of management--the construction enterprise--needs further strengthening. The prerequisites for this were defined in the CPSU Central Committee and USSR Council of Ministers decree about improving the economic mechanism. This relates particularly to granting organizations the right to use savings obtained as a result of the more effective use of machinery and mechanisms and a reduction, thanks thereto, of payments into the budget, to transfer unused wage-fund savings into the material

incentive fund, and to dispose of funds that were saved by using less expensive materials (not to the detriment of quality), and also to expanding rights to use the wage fund and to establish markups to rates and schedules.

The prerequisites should be created for implementing the principle of reimbursing expenditures also by means of prices for the construction product. This concerns primarily the amount of budget-estimated profit.

As is known, in establishing in 1969 the amount of accumulations planned in the price of the construction product, consideration was given to the fact that payment for the use of fixed production capital was about 3 percent, and for credit it was 0.5 percent of the amount of the incentive funds where the planned profit was 4 percent. At present about 6 percent is introduced into the budget for the use of capital, and for credit--where conditions are average for the organization of construction operations--more than 2 percent, and in this case the share of deductions from profit into incentive funds has risen substantially. And other deductions and payments through planned accumulations have been increased in construction organizations. This requires also a corresponding increase in planned accumulations during the conversion, beginning in 1984, to the new budget-estimated prices.

The conduct of economic activity on the basis of cost-accounting principles can yield the greatest effect when all the elements of the system, from bottom to top--from the brigade to the ministry, are under cost-accounting relationships.

Conversion of the republic ministries to full cost accounting has required review of the organizational structure of management. This has been dictated not only by a striving to raise production effectiveness but also by the necessity to expend resources for management economically. Just what is the state of affairs at present?

In UkSSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises], for example, there are five tiers of management (the ministry, the main administration, the combine, the trust, and the SMU [construction and installing administration]). Each of them has current state (budget) accounts for the use of capital. In this case the entire administrative, juridical and economic responsibility for the results of economic activity lies with the basic element of management. The distribution of rights (especially in the establishment of funds and the use of production reserves) practically does not rest upon unified economically substantiated principles. Wage-fund reserves and reserves for reducing operating costs and capital investment should, in the case of a ministry that operates on the basis of self support, be created in the ministry itself. However, in practice, they are being accumulated in individual main administrations and even in the combines. Reserves of materials and equipment resources are being created at all management levels.

Unified terms for creating and using economic incentive funds are not being observed where the whole ministry operates on the principles of cost accounting.

As experience suggests, for purposes of the successful realization of cost-accounting principles in the management system, the number of tiers in its structure must be reduced to two or three. Unfortunately, the construction ministries are moving in this direction extremely slowly and very cautiously. Data about management expenditures by ministry indicate that they not only are not being reduced but, on the contrary, are still being increased. This relates primarily to construction ministries in the Ukraine and Kazakhstan. But even in Belorussian Minpromstroy, where much has been done to improve management, manning of the administrative and management staff per 1 million rubles' worth of construction and installing work rose from 8 to 20 persons in 3 years. The latter, when production is self-supporting, is important not only in and of itself but it also testifies to the complexity of the management structure, which hinders the organization of cost accounting in the branch's system as a whole and makes extremely difficult the distribution of rights among the various elements. Without this, cost accounting can be only formalistic in nature.

The currently existing scheme for managing production in various regions, in the Ukraine and in Kazakhstan for example, includes two middle tiers: the republic construction ministry and the territorial main administration. Definite difficulties result from this when distributing rights and obligations and when approving plan indicators for the evaluation of activity and for economic incentives, that is, for everything upon which cost accounting relies as a method of management.

The scheme for distributing the most important rights granted to management elements under cost-accounting conditions can be, in our opinion, as follows.

All the economic reserves, a substantial portion of material reserves, a portion of the funds for temporary assistance to various subunits, and incentive funds for staff activity, by means of which the sizes of the funds of subordinate organizations can be regulated, are concentrated in the upper element of the cost accounting system (the republic ministry or the main administration).

In the middle element (the association or the trust) economic reserves are not formed, but a portion of the material reserves are accumulated. Here economic incentive funds are created through the deduction of subordinate organizations, and economic incentive funds are also formed for carrying out planned tasks (for profit, construction commodity output, and labor productivity).

One of the important tasks of the cost accounting system is establishment of the prerequisites for the self-support of production at the various management levels, in all production elements. It is natural, in so doing, that different types of expenditures should be included in recoverable



The construction management system	The cost accounting system in construction
The highest element: the All-Union (or Union-republic) ministry of the USSR	-
The middle element: the Union-republic ministry of a Union republic, main administration for construction, territorial main administration (or an administration) for construction, the All-Union or republic construction association	The highest element: the Union-republic minister of a Union republic, main administration for construction, territorial main administration (or an administration) for construction, the All-Union or republic construction association
The basic element: the construction and installing production association or the trust	The basic element: the construction and installing production association or the trust
-	The primary (bottom-level) element: the brigade (or section) under contract

expenditures at the various hierarchical levels. For example, in our opinion, within elements that work on the principles of internal cost accounting (the SMU, the sector, the brigade), recoverable expenditures should include only expenditures that are separate elements of operating costs.

Income from the socialist state production enterprise's activity should enable not only the covering of production outlays and various operating costs of the output but also the introduction of payments into the budget for the use of fixed capital and for credit for unfinished work. It is completely probable that the enterprise cannot by far always cover expenditures for expanded reproduction. In considering that the latter presupposes the development of specialization of production and of cooperative arrangements therefor, the middle element of management should take upon itself a substantial portion of the expenditures for these purposes. It is this element which, from our point of view, should finance the creation of enterprises that produce new types of constructional structure, the organization of certain specialized production facilities, and so on.

The upper element of the cost accounting system should cover expenditures for upkeep of the cost accounting system's administrative staff and should finance scientific and technical research, experimental developments and the training of personnel through income from production activity.

For ministries and main administrations that are operating under self-support principles, the standard for deductions of the portion of the profit that remains at their disposal is at present being counted the same as was done previously for Minpribor [Ministry of Instrument Making, Automation Equipment and Control Systems] during the experiment it conducted. The

standard is established in such a way that the ministry can cover expenditures for expanded reproduction through profit and other resources at its disposal. Theoretically, this is completely possible, but in practice it is not: that which is applicable to such a branch of industry as instrumentmaking is not applicable to construction. The latter, as is known, is a branch of the national economy that includes a number of subbranches, as well as territorial contracting organizations that are, organizationally, relatively singular. This is why not the whole branch, not all construction work, and not even the whole Union-republic construction ministry, but only a portion of it--the construction ministry of the Union republic--is converting to the principles of self-support of the activity.

In speaking about the self-support of an activity, it must be kept in mind that, by virtue of the existing concentration of production, its specialization, and cooperative arrangements in the constructional-structure industry, a portion of the ZhBI [reinforced-concrete articles] plant that are on the balance sheet of construction main administrations and ministries provide output not only for the latter but also for other organizations. Thus, to demand full self-support from cost accountable main administrations and ministries is, in our opinion, anomalous. Practice itself is confirming this.

So, all the ministries and main administrations that are operating under the terms of the Belorussian experiment are unable to cover expenditures for expanded reproduction. In this case, the greater the gap that arises between the requirements and the potential, the greater the expenditures for capital construction. For example, while expenditures for expanded reproduction are being repaid in the Lithuanian SSR Ministry (with a 4-fold reduction in expenditures for capital construction), the Belorussian SSR Ministry of Industrial Construction required 30 million rubles in budget appropriations at those same prices in 1977-1978.

Since the republic ministries and main administrations that have transferred to the principles of self-support of production are only a portion of the Union-republic ministry and participate in intrabranh cooperative arrangements, the standard for deductions of funds from profit placed at their disposal should be established to take into account the need to cover a portion of the capital expenditures for producing structure, parts and other materials supplied to outside organizations. It is desirable to cover this portion of the expenditures through Union-republic ministry resources. With conversion of the latter to self-support, it will be possible to return to the currently existing formula for computing the standard.

Under existing branch specialization, regional cooperative arrangements, and the existing prices for construction output and price lists for separate components thereof (for example, for reinforced concrete, for the services of mechanization subunits), organs for managing construction (the upper and middle elements) could provide reimbursement of expenditures for expanded reproduction, in our opinion, while being granted definite rights to take part in formulating prices for various types of construction output. It would be possible by means of settlement prices to create more

favorable circumstances for profitability of the work of All-Union and republic associations that are specialized by types of constructional output produced (for example, those that do agricultural construction).

As experience indicates, minimal profitability should be 8-9 percent for the basic management element, 11-12 percent for the republic ministry under terms of full self-support of production. These indicators can serve, it is true, only as guideposts. They need to be supported by appropriate economic calculations.

USSR Gosplan, in establishing the gross profit task for construction ministries and agencies, now corrects it to take into account changes in wholesale and budget-estimated prices for building materials and structure. In so doing, the task for profit is reduced in accordance with the difference in prices. This solution of the problem is justified, from our point of view, when a portion of the expenditures of the construction ministries and agencies, namely, those for the expansion of construction production, that is, for development of the in-house production base, is covered from the budget. In this case, appropriations from the budget were increased practically automatically according to the reduction in gross profit.

However, under the terms for self-support for the production activity of construction ministries and main administrations, such a procedure for determining the amount of profit proves to be unacceptable, since all expenditures, including renovational, should be covered by in-house resources. The legitimacy of this conclusion can be confirmed by the following example. The planning of profit by such a procedure was accompanied, in the case of the Lithuanian SSR Ministry, by a reduction in the amount thereof to 25 million rubles in 1978 and to 21.5 million rubles in 1979, when the actual amount in 1977 was 31.6 million rubles. According to the ministry's computations, the amount of balance-sheet profit is reduced by 6-7 million rubles year year because of the difference in prices. When planning the ministry's activity for 1979, the principle of self-financing of expenditures could have been preserved only by freeing the ministry from payment for capital and other payments into the budget in an amount that exceeds 11 million rubles (in comparison with the actual sum of the payment for 1977) and a reduction of investment in developing the in-house base from 7 to 1.4 million rubles.

A similar situation is observed also in Belorussian SSR Minpromstroy. Balance-sheet profit was reduced from 93 to 75 million rubles here in 1976-1978, and the unreimbursed difference in prices in 1978 was, according to the most modest estimates, 3.5 million rubles.

In our opinion, until wholesale and budget-estimated prices are stabilized (this, as is known, should have been done in accordance with the CPSU Central Committee and USSR Council of Ministers decree, "On the Improvement of Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality"), it is necessary to change the procedure for planning the balance-sheet profit of

construction ministries and agencies that are operating under self-support of the production activity--not to reduce the plan for profit but to compensate for the entire "difference in prices," after establishing a firm statewide procedure for making good the construction organization's losses caused by it.

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## CONSTRUCTION

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### PREPARATIONS TO CONVERT CONSTRUCTION TO COST ACCOUNTING DISCUSSED

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[Article by Ye. N. Gromov, senior scientific worker of NIPIESUnftegazstroy [Scientific-Research and Design Institute for Economic Control Systems of Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises]]; L. M. Chernyak, candidate of economic sciences and deputy chief of GlavPEU [Main Administration for Economic Planning] of Minneftegazstroy; and A. F. Sergiyenko, candidate of economic sciences and chief of the PEU [Economic Planning Administration] of Glavtyumenneftegazstroy [Main Administration for the Construction of Oil and Gas Industries in Tyumenskaya Oblast]: "Prepare for Conversion to the New Management Methods"]

[Text] The CPSU Central Committee and USSR Council of Ministers decree of 12 July 1979, "On the Improvement of Planning and Strengthening of the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality," orients builders to the introduction into operation of enterprises, complexes, phases, and facilities that are due for early start-up and that have been readied for the output of products or the extension of services. The system of plan indicators and evaluation of the economic activity of construction and installing organizations is subordinated to this task. A broad set of measures aimed at preparing for conversion to the new management methods is being executed in the Ministry for Construction of Petroleum and Gas Industry Enterprises.

Conversion to the new management methods requires that much work be done in a short time. Special attention is paid here to the training of personnel at all levels.

Multiple seminars have been held for Minneftegazstroy subunit supervisory workers at Al'met'yevsk (November 1979), Moscow (January 1980), Tyumen' (March 1980) and Kiev (May 1980). It is planned to develop a business game for a more precise assimilation by specialists of measures for raising construction effectiveness and quality.

The most meaningful of the seminars conducted was the one at Tyumen', which attracted the greatest number of participants. The volume of

Minneftegazstroy work increased during the Tenth Five-Year Plan several-fold over that of the Ninth Five-Year Plan.

By the time the seminar was held in Tyumen' its participants had had the opportunity to become acquainted in detail with the methodological papers and the integrated plan of measures. This enabled the presentation of reports and communications from the field that gave additional information by workers of the ministry's staff and the branch institute for economics and control systems (NIPIESUneftegazstroy).

The comrades who spoke noted unanimously the importance of decree No 695 as an effective means for raising construction efficiency and quality. Much attention was paid to the necessity to execute this year a number of measures for improving the production-economics activity of construction and installing organizations. The speakers shared experiences and analyses of the preliminary calculations of construction commodity output for the results of 1978 and 1979 and also under the 1980 plan, compared them with the results of the work of organizations that operate under the existing system, and dwelt on the factors that created difficulties for conversion to the new management methods, on questions of organizing training of bottom-level personnel, and on the necessity for explaining the essentials of the steps being taken in the collectives.

During the discussion a number of questions were touched upon, whose most speedy solution, in the opinion of the seminar participants, successful implementation of the principles that were contained in the party and government decree will depend.

Much was said about the formulation of the local plan for the Eleventh Five-Year Plan, including the 1981 plan. It was noted that there are still no procedural instructions on the compilation of plans in the new indicators and control figures on ceilings for contract work. The facilities to be built during 1981 should have been defined by now, and by 1 July of this year all the design and budget-estimating documentation should be ready. At the same time, the clients in the field have no instructions of any kind. Preparations for identifying the complexes to be started up early still have not been made. It was emphasized that the questions of equal responsibility of clients and contractors for fulfillment of the plan for the introduction of facilities into operation and of the plan for construction commodity output is not being solved properly. The latest Stroybank instructions about converting up to 50 percent of construction projects in 1980 to settlements for construction jobs that have been completed was addressed, as before, just to the builders.

Special attention was paid at the seminars to questions of forming material incentive funds when converting to settlements between client and contractor for the completely finished construction and turnover of jobs for operation. In the North this is of no little importance.

It was noted at the seminar that many principles of the decree are related to construction as if to the branch as a whole, and spelling them out in

detail to take into account the specifics of operation of the various sub-branches can provide major benefit for the national economy.

Linear operations--the erection of trunk oil and gas pipelines--can be an example. When trunk pipelines are laid along existing "corridors" (where similar pipelines already have been laid), the completed sections can and should be connected to existing trunk pipelines, from shutoff to shutoff. This will yield a considerable increase in the delivery of gas and oil to consumers. It is not efficient to wait until an entire 1,000-km long pipeline is finished and the state commission signs the acceptance papers. It is desirable to consider that a section of a trunk pipeline that a client has accepted through a working-commission document and that has been connected up for operation constitutes construction commodity output. As pipeline sections are turned over, the individual finished portions of tank farms that are filled with raw material, facilities for the buildup of the oil or gas fields, and so on, can be considered as construction commodity output. The decision about credit for construction commodity output that has been accepted by the client in accordance with the official documents of working commissions for structures would stimulate the yield on funds invested in the construction.

As participants of the Tyumen' and other seminars noted, the builders' functions are, in essence, completed with the approval of the working commission acceptance papers for a facility. The rest--the setting-up and starting-up work, the integrated testing, the training of operating personnel, the provisioning of raw materials, water and electricity, and the presentation of the facility to the state commission--is the obligation of the client, and the contractor cannot exert an influence on speeding up this work. When activity on construction commodity output is planned and evaluated, discrimination of the functions and responsibility of the client and the contractor are of paramount importance.

Therefore the working commission's document can be the document that confirms the turnover of construction commodity output. Such an example was cited at the seminar. A 360-km long section on the Komsomol'sk-Chelyabinsk gas pipeline was completed and turned over by the working commission in May 1978 and it was hooked up for operation. The state commission's document accepting the facility was approved only in December, and the organization could not, during all this time, report turnover of the facility. The collective was deprived of a substantial part of the bonus that was due. In connection with the discussion about this question, the opinion was expressed that the levying of payments for the use of bank credit should cease after the working commission has signed the document.

Seminar participants proposed that, after the USSR Supreme Soviet adopts plan legislation for the next year, Stroybank organs in the field should quickly cover financing of the new facilities for the whole period of construction.

Much was also said at the seminar about construction time. When the time for erecting oil and gas facilities is set lower than the standard, it

would be correct, consider the seminar participants, not to charge interest for the use of credit during the planned period of construction.

The necessity for serious stock-taking of uncompleted construction operations was pointed out at the seminar. A portion of the "nezavershenka" [uncompleted construction work] is in fact held up for a long time, and the client does not allocate funds for its completion. Such a "nezavershenka" should, in the opinion of the seminar participants, be transferred to the client's books.

The seminar participants, those at Tyumen' particularly, approached the question of "nezavershenka" volume thoughtfully. This concerned the need to develop standards by group and type of job that would provide the necessary backups of accomplished work on facilities to be completed in later years. Examples were cited where the clients did not provide, in the plans for the year that the jobs were to be introduced, the full amount of funds necessary to complete the work. Numerous instances also testify to gaps between the budget-estimated and the actual cost of some facilities and to large amounts of additional work and refinishing work, which create obstacles to fulfillment of both the plans for introducing facilities and the plan for construction commodity output that is linked to it.

The balancing of plans, a number of the seminar participants claimed, was hindered because of the lack of a methodology for determining the production capacity of construction and installing organizations. This pre-determines planning "by eyeball" and leads to incorrect workloads for contracting organizations.

The question of supplying construction projects with materials and equipment in accordance with requirements that are determined by designs and budget estimates continue even now to remain incompletely elaborated. There are still no methodological papers on working out plans for social development and converting to standard net output.

The problem of turnkey construction was also examined at the seminar. The ministry planned to build product pipelines in turnkey fashion beginning with 1981, and eventually to convert to the construction of oil and gas pipelines by this method. In the near future Sibkomplektmontazh [Siberian Association for Supplying Complete Sets of Equipment for Erecting Buildings and Structures] should convert to the turnkey construction of oil transfer pumping stations in the box-module version. Specific proposals have been expressed for operating by this method.

The Tyumen' seminar also pointed to a definite inactivity that still exists in preparing for conversion to the new methods of management and to the necessity to overcome the definite psychological barrier of certain supervisors most rapidly. A portion of the computations for construction commodity output that had been made in past years was performed with poor quality, and the computations for uncompleted construction operations, profit, profitability and economic incentive funds that are necessary for



restructuring the activity of construction organizations under the new management methods were not brought to a conclusion.

Tyumen' seminar participants suggested further promotion of work to prepare all contracting organizations of Minneftegazstroy for conversion to the new terms for planning and stated the necessity for the most rapid issuance of the methods documents that are lacking.

Seminars and personnel training are being conducted within the Minneftegazstroy system on the basis of approved measures that will concretize the tasks of the ministry's subunits on fulfillment of the decree.

Work groups for the preparation of methodological and standards materials and for the development of entire programs that are subject to inclusion in the plan for the new five-year plan were formed.

Questions associated with methodological and organizational support for the preparations for conversion were examined systematically, and the reports of the supervisors of main administrations and associations about the state of affairs in subordinate organizations with respect to realization of the provisions of the decree were heard.

In order to work out the new management mechanism in detail at the large construction-subunit level, planning and evaluation have been performed of construction commodity output activity, along with the system in effect, since 1 January 1980 in Tatneftstroy [Association for the Construction of Oil Industry Facilities in the Tatar ASSR] and 15 trusts of other main administrations.

The Temporary Procedural Instructions on Improvement of Planning and Strengthening the Influence of the Management Mechanism on Raising the Efficiency and Quality of the Work of Minneftegazstroy Contracting Organizations have been approved and distributed locally. The Temporary Instructions on the Procedure for Determining Construction Commodity Output in Oil and Gas Construction, in which its specifics have been considered, have been coordinated with the main clients--Mingazprom [Ministry of Gas Industry] and Minnefteprom [Ministry of Petroleum Industry].

The ministry adopted the decision as of 1 July 1980 to convert to settlements with clients for completed construction and the turnover thereto of enterprises, complexes, phases and facilities due for early startup.

A comprehensive plan for improvement of the management mechanism was worked out and approved for 1980. Its main content includes: improvement of planning and of the organization and structure of management; a buildup in the profitability of construction organizations and enterprises; enhancement of the efficiency of production capital and capital investment; improvement of the organization of labor and growth in labor productivity; and improvement of budget-estimate price-setting.

A methodological council made up of highly qualified specialists has been established to give practical assistance to construction organizations in converting to the new methods of management and in supplying answers to questions about the conversion.

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